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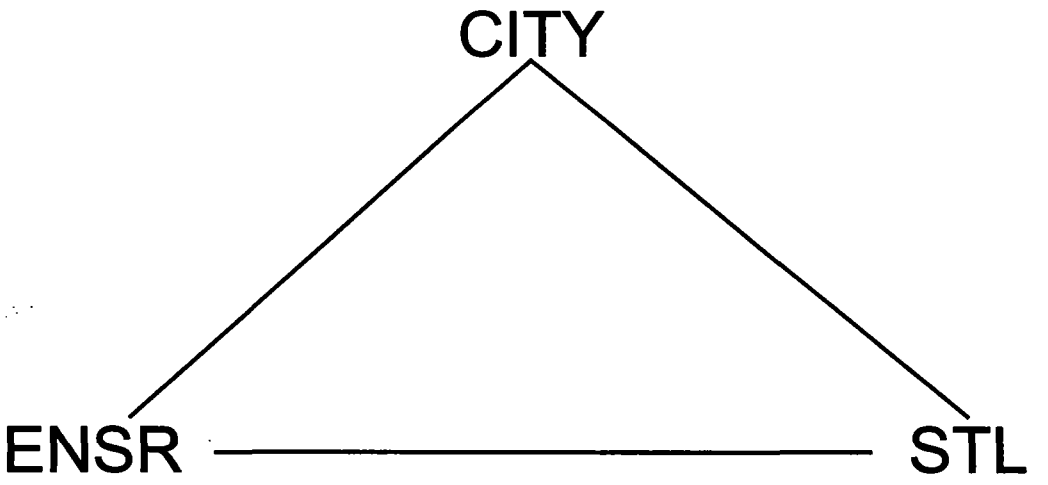
ANNUAL MONITORING REPORT
FOR 2003

REILLY TAR & CHEMICAL CORP.
N.P.L. SITE
ST. LOUIS PARK, MINNESOTA

SUBMITTED MARCH 15, 2004



ENSR International
4500 Park Glen Road
Suite 210
St. Louis Park, MN 55416-4889
(952) 924-0117
FAX (952) 924-0317
www.ensr.com

March 15, 2004

Darryl Owens
Regional Administrator
United States Environmental
Protection Agency, Region 5
Mail Code HSR-6J
77 West Jackson Boulevard
Chicago, Illinois 60604

Site Remediation Section
Director, Groundwater and Solid
Waste Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155

President
Reilly Industries, Inc.
300 North Meridian Street, Suite 1500
Indianapolis, Indiana 46204-1763

Re: United States of America, et al. vs. Reilly Tar & Chemical Corporation, et al.
File No. Civ. 4-80-469
CD-RAP Section 3.4

Gentlemen:

Enclosed is the 2003 Annual Monitoring Report, submitted pursuant to Section 3.4 of the Consent Decree-Remedial Action Plan in the above captioned matter. This report is issued by the City in accordance with Section 2(a) of the Reilly/St. Louis Park Agreement (Exhibit B to the Consent Decree).

Any questions regarding this submittal can be directed towards this office.

Sincerely,

William M. Gregg

William M. Gregg
Project Leader for the
City of St. Louis Park

Enclosure

cc: Ginny Yingling, Minnesota Department of Health
Scott Anderson, City of St. Louis Park
Mike Rardin (w/o enclosures), City of St. Louis Park

ANNUAL MONITORING REPORT
FOR 2003

SUBMITTED TO THE

REGIONAL ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

EXECUTIVE DIRECTOR
MINNESOTA POLLUTION CONTROL AGENCY

BY

THE CITY OF ST. LOUIS PARK, MINNESOTA

PURSUANT TO
CONSENT DECREE - REMEDIAL ACTION PLAN
SECTION 3.4

UNITED STATES OF AMERICA, ET AL.

vs.

REILLY TAR & CHEMICAL CORPORATION, ET AL.

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
CIVIL NO. 4-80-469

MARCH 15, 2004

CONTENTS

APPENDICES

Please refer to the Guide to Appended Laboratory Results for all 2003 samples. This guide precedes the Appendices.

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LIST OF FIGURES

1.0 INTRODUCTION

Pursuant to Section 3.4 of the Consent Decree - Remedial Action Plan (CD-RAP) in the case of the United States of America, *et al.* vs. Reilly Tar & Chemical Corporation, *et al.*, this report presents the results of all chemical analyses and water level measurements for calendar year 2003 that are not presented in previous reports.

The groundwater monitoring conducted in 2003 was performed in accordance with the methods and procedures identified in the 2003 Sampling Plan. The City of St. Louis Park (City) has overall responsibility for conducting the groundwater monitoring required by the CD-RAP. In accordance with the Sampling Plan, the City was assisted in 2003 by ENSR who collected groundwater samples from monitoring wells and by Severn Trent Laboratories who performed the analyses for PAH and phenolics. In February 2000, Severn Trent Laboratories purchased Quanterra and the laboratory is now known as STL-Denver.

The 2003 monitoring data are presented separately for each aquifer, starting with the Mt. Simon-Hinckley Aquifer, which is the deepest aquifer below the ground surface, and ending with the Drift Aquifer, which is the uppermost aquifer monitored. A series of maps has been prepared to help present the monitoring data. Maps for the Prairie du Chien-Jordan, St. Peter, Platteville, and Drift Aquifers are contained in this report.

A series of tables has been prepared for each aquifer to help present the analytical results since 1988. These tables illustrate trends in PAH concentrations in the groundwater for each monitoring well. The shaded tables represent wells that are no longer monitored as part of the sampling plan or wells that were unavailable for sampling during the scheduled time.

ENSR conducted data validation to assess the quality of the laboratory data. The data quality assessment can be found in the final section of this report.

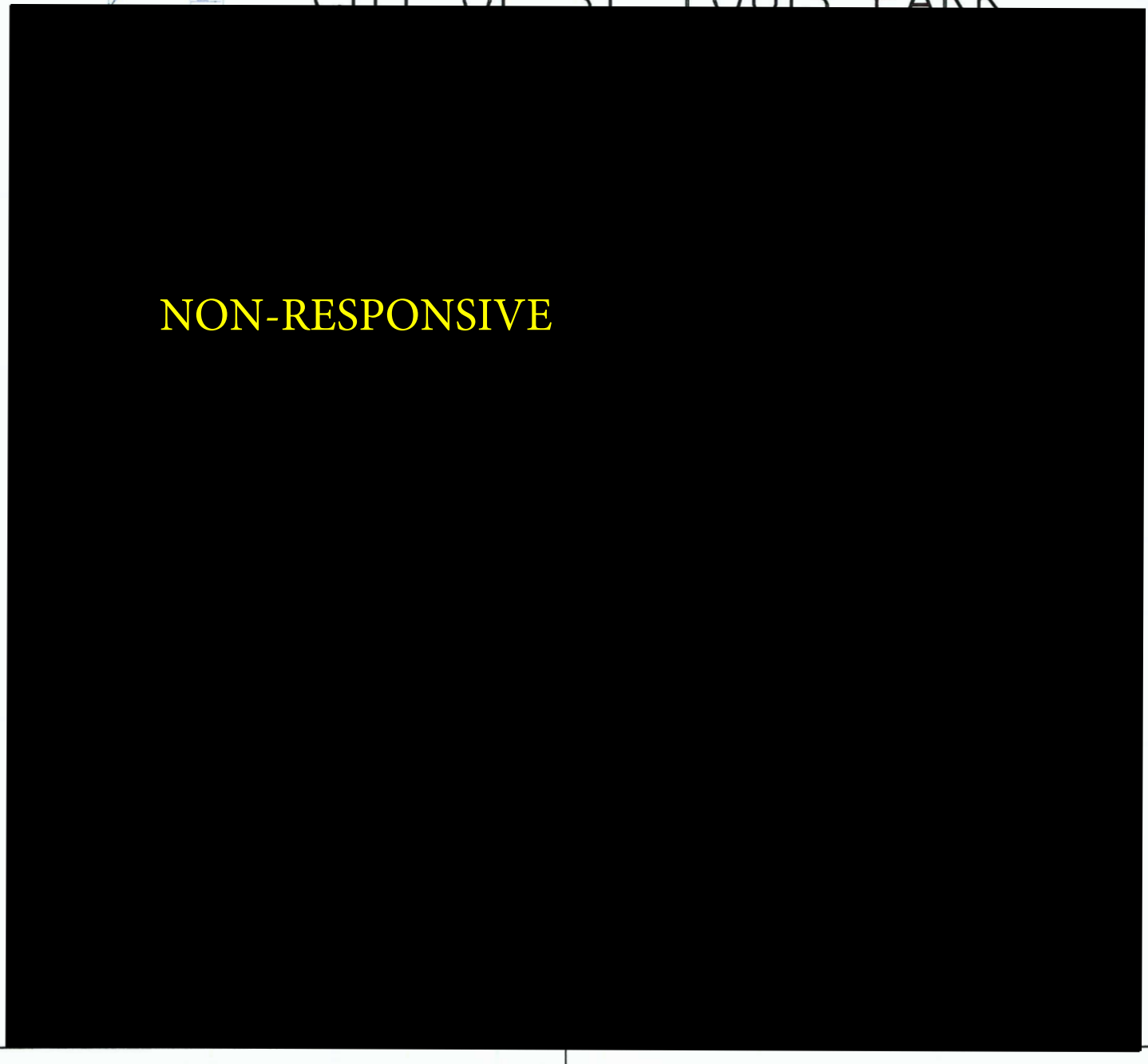
Each appendix includes a laboratory data package for a set of samples collected and submitted for analysis at the same time. Attached to the end of each data package are data quality assessment reports summarizing the quality of the analytical data contained in each package. The data Appendices are organized chronologically throughout the year, as shown in the Guide to Appended Laboratory Results immediately preceding the Appendices.

2.0 MT. SIMON-HINCKLEY AQUIFER

In accordance with RAP Section 5.1, the Mt. Simon-Hinckley Aquifer monitoring wells were sampled once in 2003. Well SLP17 was out of service and no samples were collected from it in 2003. A total of three wells were used to collect groundwater samples during 2003. The 2003 analytical data for the Mt. Simon-Hinckley wells are shown on Figure 2-1. The laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 2003 precedes the Appendices.

The advisory levels for the sum of benzo(a)pyrene and dibenz(a,h)anthracene, carcinogenic PAH, and Other PAH are 3, 15 and 175 nanograms/liter (ng/l or parts per trillion), respectively. Table 2-1 lists the historic results since 1988 of other PAH and carcinogenic PAH data collected from the three wells. The 2003 data indicate that the sums of the concentrations of benzo(a)pyrene and dibenz(a,h)anthracene, carcinogenic PAH, and other PAH in wells SLP12 and SLP13 were below the advisory levels for these compounds. However, the laboratory analytical results for well SLP11 indicated 45.7 ng/l of total carcinogenic PAH. This result is above the advisory level and drinking water criterion, and is surprising given the historical paucity of carcinogenic PAH in this well, other Mt. Simon-Hinckley Aquifer wells, and other municipal drinking water supply wells. The well was turned off in October 2003. Additional sampling was not completed in 2003. More recent testing confirms the historical levels of PAH in well SLP11. It appears that the Mt. Simon-Hinckley Aquifer has not been significantly affected by contaminants originating from the former Reilly Tar & Chemical (Reilly) site.

CITY OF ST. LOUIS PARK



NON-RESPONSIVE

REILLY SITE

▲ WELL LOCATION
SLP 17 WELL IDENTIFICATION
– WATER LEVEL
– SUM–BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPT)
– SUM–CARCINOGENIC PAH (PPT)
– SUM–OTHER PAH'S (PPT)

Concentration in nanograms per liter equivalent to parts per trillion

FIGURE 2–1

SUMMARY OF GROUNDWATER MONITORING RESULTS FOR MOUNT SIMON HINKLEY AQUIFER 2003

DRAWN: A. TARARA	DATE: 2/27/04	REV:	ENSR INTERNATIONAL
CHECKED: WMG	PROJECT: 01620–032		

Table 2-1
Historical Summary of Other PAH and CPAH Analytical Results 1988 through 2003

Mt. Simon SLP11,12,13,17

All concentrations reported in nanograms per liter (ng/l).

SLP17		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	12
6-89	0	12
6-90	1	18
3-91	0	41
11-92	3	41
6-93	0	12
12-94	4	35
10-95	0	8
6-96	0	5
10-97	62	406
5-98	0	3
5-99	0	40
9-00	Out of Service	

SLP12		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-88	0	11
6-89	0	16
3-90	0	109
3-91	0	21
5-92	1	25
3-93	0	9
3-94	0	21
10-95	0	9
6-96	0	3
10-97	0	12
5-98	0	3
9-99	0	10
9-00	0	11
8-01	0	2
9-02	3	7
8-03	0	2

SLP13		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-88	0	15
6-89	0	9
3-90	0	14
3-91	0	13
5-92	2	11
6-93	0	11
12-94	0	28
10-95	0	9
6-96	0	5
10-97	0	22
5-98	0	4
5-99	0	15
9-00	0	6
8-01	0	0
9-02	0	0
8-03	0	0

SLP11		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-88	0[3]	42
6-89	0	34
90	Out of Service	
3-91	0	43
5-92	0	43
3-93	0	50
3-94	0	66
10-95	3	113
6-96	0	109
10-97	0	78
5-98	0	70
5-99	0	151
9-00	0	22
8-01	0	19
9-02	Out of Service	
8-03	46	37

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene	chrysene	quinoline*
benzo(a)pyrene	dibenz(a,h)anthracene	benzo(j)fluoranthene**
benzo(b)flouranthene	indeno(1,2,3-cd)pyrene	benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)flouranthene can not be consistently separated by the laboratory. Therefore, if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene	benzo(e)pyrene	2,3-dihydroindene	1-methylnaphthalene
acenaphthylene	benzo(b)thiophene	fluoranthene	2-methylnaphthalene
acridine	biphenyl	fluorene	naphthalene
anthracene	carbazole	indene	perylene
benzo(k)fluoranthene	dibenzothiophene	indole	phenanthrene
2,3-benzofuran			pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit.

3.0 IRONTON-GALESVILLE AQUIFER

Analytical results from groundwater samples collected during 1987 through 1991 from well W105 had consistently met the criterion (less than 10 parts per billion [10,000 parts per trillion] total PAH) for discontinuing the 25 gallons per minute (gpm) pumping rate. Therefore, in accordance with CD-RAP Section 6.1.5, the pump in well W105 was inactivated on December 23, 1991, and remains inactivated.

Well W105 is required to be sampled once per year on the even-numbered years (i.e. 2002, 2004, 2006). Groundwater samples were not required to be collected from well W105 in 2003.

The historical analytical results for well W105 from 1988 through 2003 are presented on Table 3-1. Concentrations have remained below the 10,000 ng/l cessation criterion since well W105 ceased pumping in 1991.

Table 3-1

Historical Summary of Other PAH and CPAH in Well W105
1988 Through 2003

All concentrations repoprted in nanograms per liter (ng/l).

	W105	
Sampling Date	Total CPAH[1]	Total Other PAH[2]
2-88	0[3]	9,000
6-88	0	2,400
9-88	0	3,670
12-88	0	2,035
6-89	0	1,400
12-89	0	1,086
5-90	0	2,347
8-90	0	2,600
5-91	9.5	2,164
8-91	0	1,014
2-92	0	2,185
6-92	355	5,057
11-92	0	30,900
1-93	38	1,797
1-93	23	1,966
3-94	60	2,576
5-96	29	2,746
4-98	0	5,493
5-00	89	5,593
6-02	142	5,247

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1), consist of the sum of:

- benzo(a) anthracene
- benzo(a)pyrene
- benzo(b)flouranthene
- chrysene
- dibenz(a,h)anthracene
- indeno(1,2,3-cd)pyrene
- quinoline*
- benzo(j)fluoranthene**
- benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo-(j)flouranthene can not be consistantly separated by the laboratory. Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2)), consists of the sum of:

- acenapthene
- acenaphthylene
- acridine
- anthracene
- benzo(k)fluoranthene
- 2,3-benzofuran
- benzo(e)pyrene
- benzo(b)thiophene
- biphenyl
- carbazole
- dibenzofuran
- dibenzothiophene
- 2,3-dihydroindene
- fluoranthene
- fluorene
- indene
- indole
- 1-methylnaphthalene
- 2-methylnaphthalene
- naphthalene
- perylene
- phenanthrene
- pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit

4.0 PRAIRIE DU CHIEN-JORDAN AQUIFER

Prairie du Chien-Jordan Aquifer wells were monitored in accordance with the 2003 Sampling Plan. In addition to water quality monitoring, groundwater elevations were measured at the Prairie du Chien-Jordan Aquifer wells on April 18, and August 1, 2003. A total of 20 wells were used to collect groundwater samples during 2003.

Summaries of analytical data and groundwater elevations for the sampling rounds are shown in Figures 4-1 and 4-2. These two figures indicate that groundwater flow in the aquifer is greatly affected by the pumping of wells and is dependent upon the pumping rate and the time the specific measurements were recorded (e.g., pump may have been recently shut off, or turned on). Some of the municipal wells (i.e. SLP10/15, E7, and SLP4) pump at greater than 1,000 gpm and have a considerable effect on localized groundwater flow. However, these wells systematically turn on and turn off, therefore, the general groundwater flow is affected by which wells are pumping and at what rates. According to several literature resources, including the USGS (Water Supply Paper 2211, 1984), Norvitch and others (Water Resources Outlook of the Minneapolis and St. Paul Metropolitan Area, 1973), the general groundwater flow in the Prairie du Chien-Jordan Aquifer is towards the east. Figures 4-1 and 4-2 indicate a snapshot in time of the groundwater flow and are not indicative of the long-term flow.

Table 4-1 presents a historical summary of analytical results from 1988 through 2003 for Prairie du Chien-Jordan Aquifer wells. The laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 2003 precedes the Appendices.

The advisory levels for the sum of benzo(a)pyrene and dibenz(a,h)anthracene, carcinogenic PAH, and Other PAH are 3, 15 and 175 nanograms/liter (ng/l or parts per trillion), respectively. The sums of the concentrations of benzo(a)pyrene and dibenz(a,h)anthracene, carcinogenic PAH, and other PAH were below the drinking water criteria levels of 280ng/l in all of the Prairie du Chien-Jordan Aquifer municipal drinking water supply wells, except for wells SLP4 and SLP10. These wells are treated with granular activated carbon prior to use. W23 is also treated with carbon prior to discharge into the storm water system. Carcinogenic PAH were detected in seven of the 20 wells that were sampled. Concentrations of carcinogenic PAH ranged from 1ng/l in W119 to 514 ng/l in W23.

The amount and distribution of PAH in the aquifer in 2003 was consistent with historical patterns and continues to show a decreasing trend of PAH concentrations in most of the wells. For example, no PAH were detected in well W70 in 2003.

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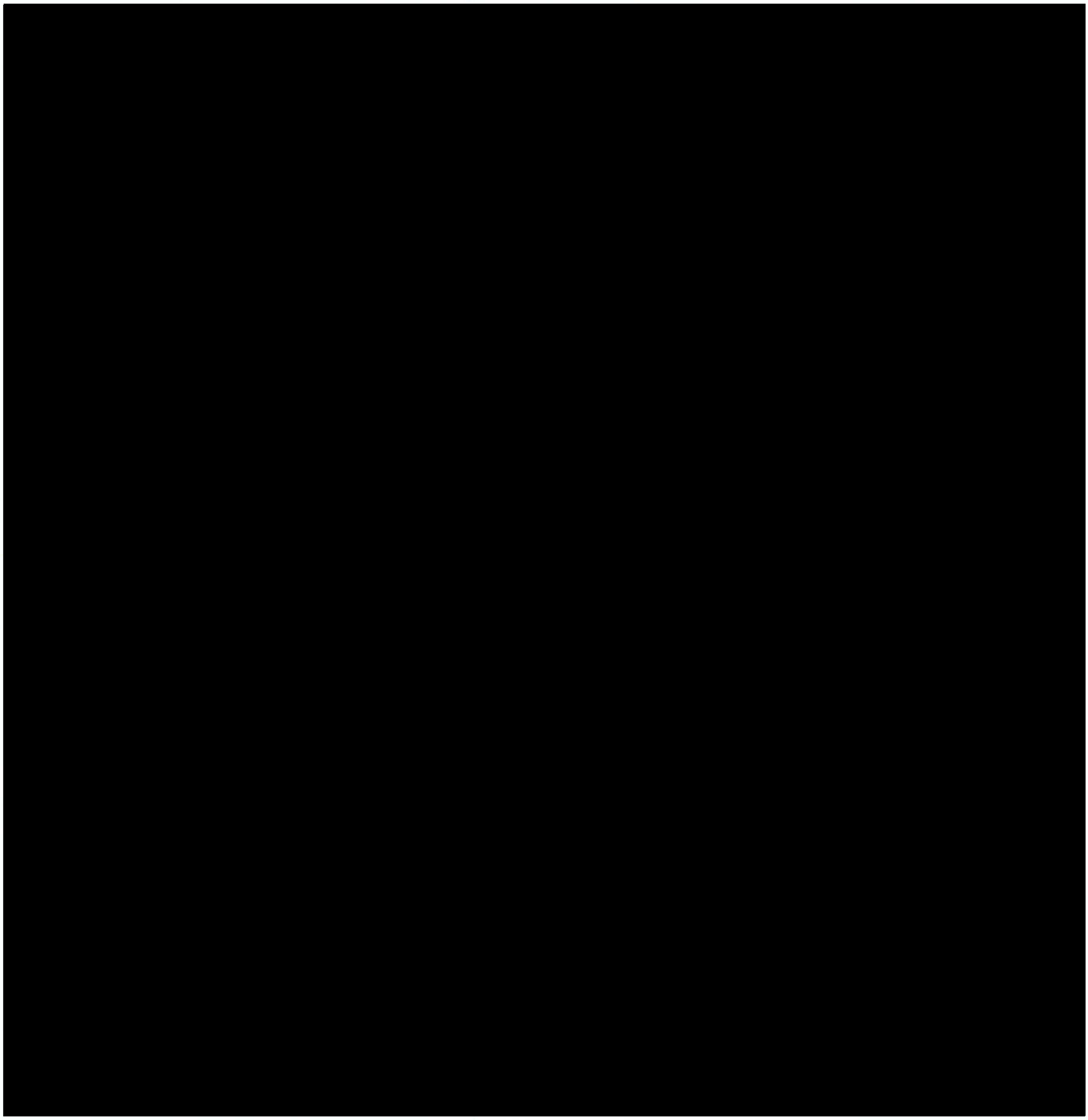


LEGEND

Reilly Site

N
W E
S

0 2,500 5,000 10,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppt)
Total Carcinogenic PAH (ppt)
Total Other PAH (ppt)
0 = Not detected
- = Not sampled

5 Foot Groundwater Level Contour

FIGURE 4-1

Summary of
Groundwater Monitoring Results
Prairie Du Chien-Jordan Aquifer
First Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
CHECKED: B. GREGG	PROJECT: 1620-032		

CITY OF ST. LOUIS PARK

LEGEND

Reilly Site

N
W E
S

0 2,500 5,000 10,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppt)
Total Carcinogenic PAH (ppt)
Total Other PAH (ppt)
0 = Not detected
- = Not sampled

5 Foot Groundwater Level Contour

FIGURE 4-2

Summary of
Groundwater Monitoring Results
Prairie Du Chien-Jordan Aquifer
Second Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
CHECKED: B. GREGG	PROJECT: 1620-032		

Table 4-1
Historical Summary of Other PAH and CPAH Analytical Results
1988 through 2003

Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter (ng/l)

SLP4		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0 [3]	244
10-89	0	232
3-90	0	210
6-90	2	239
11-92	3	309
3-93	0	237
6-93	0	259
3-94	0	552
10-94	1	571
9-95	3	561
12-95	6	229
6-96	0	431
9-96	0	526
4-97	0	596
9-97	0	533
4-98	0	440
9-98	1	361
11-98	5	91
5-99	0	485
8-99	0	328
5-00	0	465
9-00	0	376
5-01	3	397
5-02	0	281
5-03	0	249

SLP10		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	8,200
10-89	0	5,120
6-90	0	5,403
8-90	0	7,386
5-91	5	315
6-92	0	3,070
8-93	0	2,091
6-94	0	2,174
6-95	0	1,737
6-96	0	1,742
10-97	0	1,859
5-98	0	1,354
5-99	0	1,452
5-00	0	2,947
5-01	0	1,929
6-02	2	1,453
9-03	8	1,327

SLP5		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
10-88	0	613
6-89	0	94
6-90	0	49
5-91	1	42
6-92	1	71
8-93	5	77

SLP8		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	18
6-89	0	8
10-89	0	9
3-90	0	15
3-91	0	50
5-92	1	19
11-92	2	9

SLP14		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	112
6-89	0	134
9-89	0	84
3-90	0	98
8-90	0	145
5-91	1	99
8-91	0	19
5-92	1	90
8-93	0	78
9-94	0	57
6-95	0	89
6-96	0	52
4-97	0	46
5-98	0	55
5-99	0	49
5-00	0	50
5-02	0	25

SLP6		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	33
10-88	0	55
6-89	7	52
9-89	0	36
10-89	0	40
3-90	0	45
6-90	3	80
8-90	0	117
10-90	0	68
8-91	0	123
5-92	1	123
11-92	0	173
3-93	0	212
6-93	0	113
2-94	1	74
6-95	0	88
6-96	1	180
8-96	0	178
10-96	0	189
1-97	0	236
2-97	0	210
3-97	0	277
6-97	0	217
5-98	0	146
8-98	0	173
8-99	0	174
5-00	0	218
8-01	0	158
11-01	0	138
3-02	0	181
5-02	0	189
9-02	0	219
10-02	0	178
3-03	0	124
5-03	0	165
8-03	5	137
11-03	0	238

SLP7		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	78
10-88	0	51
6-89	0	61
9-89	0	25
10-89	0	25
3-90	0	43
6-90	2	48
8-90	2	91
10-90	0	49
3-91	0	50
5-91	0	37
8-91	0	65
5-92	1	40
3-93	0	32
6-94	0	60
6-95	0	28
6-96	0	22
4-97	0	11
5-98	0	17
5-99	0	17
well not in service		

SLP15		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-89	0	4,026
11-92	0	3,206
8-93	0	2,091

Table 4-1
Historical Summary of Other PAH and CPAH Analytical Results
1988 through 2003

Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter (ng/l)

SLP16		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	48
6-89	0	28
9-89	0	24
8-90	8	374
11-90	0	59
5-91	1	32
8-91	0	64
11-92	1	42
8-93	0	11
6-94	0	22
6-95	0	13
6-96	0	8
9-97	0	9
5-98	0	7
5-99	0	0
5-00	0	9
5-02	0	0

E2		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	14
6-89	0	21
9-89	0	8
6-90	3	22
8-90	0	14
5-91	4	21
8-91	0	17
5-92	0	19
8-93	0	9
6-94	0	16
12-95	0	10
6-96	0	14
10-96	0	20
4-97	0	45
10-97	0	13
5-98	0	13
8-98	0	196
10-98	0	34
8-99	0	6
5-00	0	8
9-00	0	6
5-01	0	16
9-02	0	0
8-03	0	8

E3		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	15
6-89	0	15
6-90	1	17
8-91	0	13
5-92	4	21
8-93	0	5
6-94	0	7
6-95	0	8
6-96	0	3
6-97	0	4
5-98	0	3
5-99	0	0
5-00	0	0
5-01	0	16
5-02	0	0
8-03	0	1

E7		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-96	0	3
10-96	0	5
6-97	0	3
10-97	0	2
5-98	0	1
8-98	0	6
5-99	0	5
8-99	0	2
5-00	0	16
9-00	0	9
5-01	0	22
5-02	0	29
8-03	0	22

E13		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	4
6-89	0	20
9-89	0	6
6-90	0	13
8-90	2	227
5-91	1	11
8-91	0	12
5-92	0	43
8-93	0	4
6-94	0	3
6-96	0	3
10-96	0	4
4-97	0	38
10-97	0	8
5-98	0	21
8-98	0	36
5-99	0	15
8-99	0	35
5-00	0	39
9-00	0	49
5-01	0	41
5-02	0	80
8-03	7	87

E15		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	11
6-89	0	16
6-90	0	11
5-91	0	13
5-92	0	23
8-93	0	4
6-94	0	6
6-95	0	8
6-96	0	10
10-96	0	29
6-97	0	3
10-97	0	14
5-98	0	22
8-98	0	7
5-99	0	38
8-99	0	18
5-00	0	26
9-00	0	14
5-01	0	27
9-02	0	5
8-03	0	5

H3		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	378
6-89	0	93
9-89	0	370
6-90	0	168
8-90	0	5,300
Abandoned		

H6		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	19
6-89	0	16
6-90	0	15
5-91	0	16
5-92	0	16
8-93	0	3
6-94	0	6
6-95	0	3
6-96	0	3
4-97	0	2
5-98	0	5
5-99	0	5
5-00	0	5
5-02	0	0

Table 4-1
Historical Sum[redacted] of Other PAH and
CPAH A[redacted]tical Results
1988 through 2003

Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter (ng/l)

MTK6		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	4
6-89	0	12
6-90	5	22
5-91	0	17
5-92	4	19
8-93	0	7
6-94	0	8
6-95	0	15
6-96	0	4
4-97	0	3
5-98	0	0
5-99	0	2
5-00	0	3
5-02	0	0

W48		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	2,418
6-89	0	1,636
9-89	0	1,850
10-89	0	1,130
3-90	0	1,690
6-90	0	1,809
8-90	22	4,566
8-93	2	428
6-94	1	285
6-95	3	310
6-96	3	259
6-97	0	316
10-97	0	290
5-98	0	186
8-98	0	50
5-99	0	226
8-99	0	226
5-00	0	222
9-00	0	130
5-01	0	234
8-01	0	149
11-01	0	180
3-02	0	222
5-02	0	185
9-02	0	138
10-02	0	187
3-03	0	108
5-03	0	135
8-03	0	135
10-03	0	173

W23		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
9-88	0	111,100
12-88	0	123,100
3-89	0	120,200
6-89	0	117,600
9-89	0	106,300
3-90	0	129,100
8-90	0	114,700
3-91	0	87,800
6-91	0	71,800
9-91	0	91,200
10-91	0	82,600
2-92	0	67,600
9-92	0	78,000
6-94	0	60,000
10-94	0	64,000
5-95	4,000	128,000
9-95	0	70,000
4-96	0	48,000
7-96	0	50,000
4-97	0	34,000
10-97	0	47,000
2-98	0	0[3]
11-98	0	42,090
4-99	0	25,970
8-99	0	14,850
5-00	0	8,790
9-00	0	37,980
12-00	0	25,000
4-01	472	25,840
3-02	0	28,700
6-02	654	29,832
9-03	514	23,391

W119		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	3
6-89	0	18
9-89	0	11
9-01	0	294
Well was out of service 02'		
10-03	1	196

W40		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	1,062
6-89	0	540
6-90	16	705
5-91	5	474
5-92	2	283
8-93	5	345
6-94	0	484
6-95	0	369
6-96	0	498
4-97	0	624
5-98	0	220
5-99	0	299
5-00	2	129
5-01	7	390
Well is out of service		

W70		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	481
6-89	5	426
9-89	0	280
6-90	9	560
5-91	8	669
6-92	8	401
8-93	2	317
6-94	4	299
6-95	0	384
6-96	0	342
4-97	0	335
5-98	0	307
5-99	0	254
5-00	0	3
Well was out of service 01-02'		
5-03	0	0

W29		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	495
6-89	28	338
6-90	4	372
5-91	6	405
5-92	12	531
8-93	39	1,887
6-94	9	749
6-95	0	1,164
6-96	0	82
4-97	0	418
5-98	0	261
5-99	0	99
5-00	3	212
5-01	3	175
5-02	0	44
5-03	0	62

W401		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	12
6-89	0	15
6-90	0	27
5-91	0	28
5-92	0	10
8-93	1	10
6-94	0	8
6-95	0	16
6-96	0	19
10-96	0	29
6-97	0	174
10-97	0	121
5-98	0	66
8-98	0	5
5-99	0	64
8-99	0	23
5-00	0	105
9-00	0	158
5-01	0	295
5-02	0	149
8-03	0	60

Table 4-1
Historical Sum[redacted] of Other PAH and
CPAH A[redacted]tical Results
1988 through 2003

Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter (ng/l)

W402		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
9-89	0	151
6-90	47	720
8-90	16	133
5-91	16	408
8-91	0	18,320
6-92	12	895
8-93	7	145
6-94	5	104
6-95	0	567
6-96	13	383
4-97	0	257
5-98	0	349
5-99	1	545
5-00	0	1,287
5-01	0	267
5-02	13	165
5-03	3	56

W403		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	57
6-89	40	974
9-89	0	177
8-90	49	1,102
5-91	110	976
8-91	0	11,570
6-92	19	816
8-93	7	516
6-94	7	1,271
6-95	0	543
6-96	3	182
4-97	0	172
5-98	0	11
5-99	0	169
5-00	0	195
5-01	0	458
5-02	3	134
5-03	125	66

W406		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-89	0	36
10-89	0	26
6-90	8	43
8-90	15	119
5-91	1	30
8-91	1	40
5-92	6	53
8-93	0	22
6-94	0	31
6-95	0	34
6-96	0	21
4-97	0	27
5-98	0	15
5-99	0	28
5-00	0	30
5-02	well out of service	

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a)anthracene
benzo(a)pyrene
benzo(b)flouranthene
chrysene
dibenz(a,h)anthracene
indeno(1,2,3-cd)pyrene
quinoline*
benzo(j)fluoranthene**
benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)fluoranthene can not be consistantly separated by the laboratory. Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene
acenaphthylene
acridine
anthracene
benzo(k)fluoranthene
2,3-benzofuran
benzo(e)pyrene
benzo(b)thiophene
biphenyl
carbazole
dibenzofuran
dibenzothiophene
2,3-dihydroindene
fluoranthene
fluorene
indene
indole
1-methylnaphthalene
2-methylnaphthalene
naphthalene
perylene
phenanthrene
pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit.

5.0 ST. PETER AQUIFER

Nine St. Peter Aquifer wells were monitored semi-annually in 2003. In addition to water quality monitoring, groundwater elevations were measured in 10 St. Peter Aquifer wells on April 18 and August 1, 2003. Summaries of analytical data and groundwater elevations for the first and second half of 2003 are shown in Figures 5-1 and 5-2 respectively. Laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 2003 precedes the Appendices.

A historical summary of total Other PAH and carcinogenic PAH results from 1988 through 2003 is presented in Table 5-1. The data in Table 5-1 indicates several trends. Total PAH concentrations have remained relatively stable for wells W122 and W133. Total PAH concentrations show a downward trend in groundwater samples collected from SLP3, W24, W33, W409, W410, W411, and W412. Carcinogenic PAH was detected in five of the nine monitoring wells sampled in 2003.

Groundwater samples collected from well W409 have shown a variation in total PAH concentrations, apparently in response to pumping well W410. The PAH concentration in well W409 increased from 1991 to 1996, decreased for two years, then reached an all-time high in May of 2000. Total PAH concentrations have steadily decreased in well W409 since the May 2000 sample.

The total PAH concentration at well W410 appears to have reached a high near 21 micrograms per liter in 1994/1995 and since then has shown a general downward trend.

In conclusion, the 2003 sampling results for the St. Peter Aquifer appear to accurately represent water quality conditions in the aquifer. The operation of well W410 does appear to be effective in controlling the flow of groundwater as evidenced by the 2003 water quality, and the water level contours shown in Figures 5-1 and 5-2. Continued monitoring in accordance with the Sampling Plan will allow continued evaluation of water quality in the St. Peter Aquifer.

5-1
Historical Sui of Other PAH and CPAH Analytical Results 1988 Through 2003

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter (ng/l).

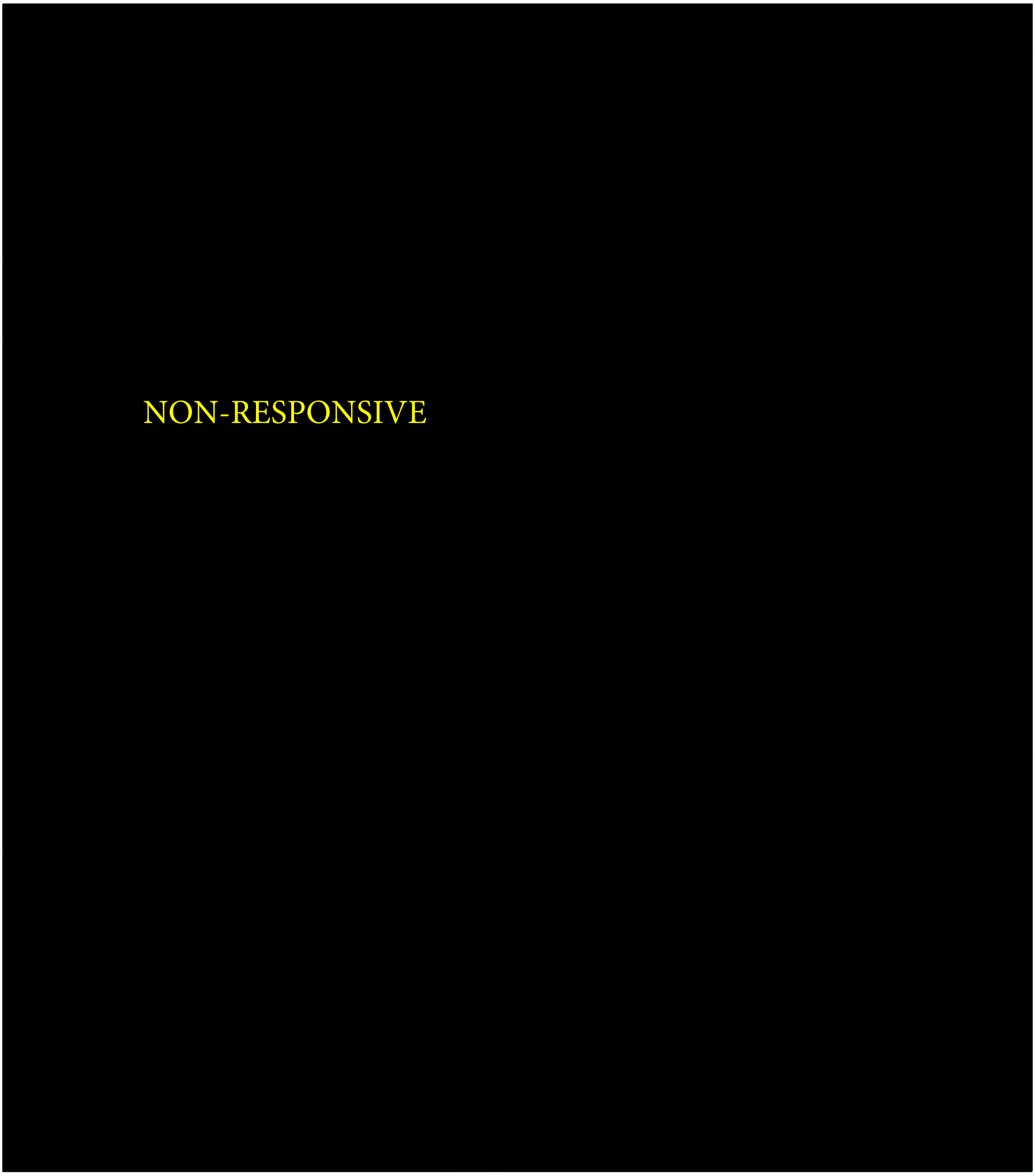
SLP3		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0 [3]	8
10-88	0	9
6-89	0	10
10-89	0	15
6-90	5	29
8-90	1	18
8-91	1	23
6-92	0	16
11-92	0	13
4-93	0	9
7-93	0	5
5-94	0	8
10-94	0	5
5-95	0	7
10-95	0	16
6-96	0	11
10-96	0	4
4-97	0	6
10-97	0	5
4-98	0	7
9-98	0	247
5-99	0	7
8-99	0	0
5-00	0	5
9-00	2	25
5-01	0	10
8-01	0	2
5-02	0	15
9-02	0	0
5-03	0	0
8-03	0	0

P116		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	8	196
10-88	0	3,770
6-89	1	82
10-89	3	42
6-90	2	20
4-91	0	61
8-91	3	40
6-92	13	118
11-92	10	219
4-93	4	52
7-93	2	38
5-94	1	64
11-94	0	66
5-95	0	50
10-95	0	53
6-96	0	7
10-96	0	43
4-97	0	35
10-97	0	82
4-98	5	148
9-98	0	60
5-99	4	50
8-99	0	55
5-00	2	36
Well not available		

W14		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	57	95
10-88	0	439

W24		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	3,309
10-88	0	3,622
4-91	0	4,023
8-91	0	4,160
6-92	0	3,380
11-92	0	3,650
4-93	0	2,950
7-93	0	3,294
5-94	0	2,669
11-94	0	4,029
5-95	0	3,190
10-95	0	1,550
5-96	0	974
10-96	0	1,603
4-97	0	1,513
10-97	0	1,340
4-98	0	689
9-98	0	1,120
4-99	0	2,085
9-99	0	3,590
5-00	0	940
5-01	0	152
9-01	0	619
6-02	0	439
9-02	0	307
6-03	0	335
9-03	0	246

CITY OF ST. LOUIS PARK



LEGEND

Reilly Site

N
W E
S

0 500 1,000 2,000 3,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppt)
Total Carcinogenic PAH (ppt)
Total Other PAH (ppt)
0 = Not detected
- = Not sampled

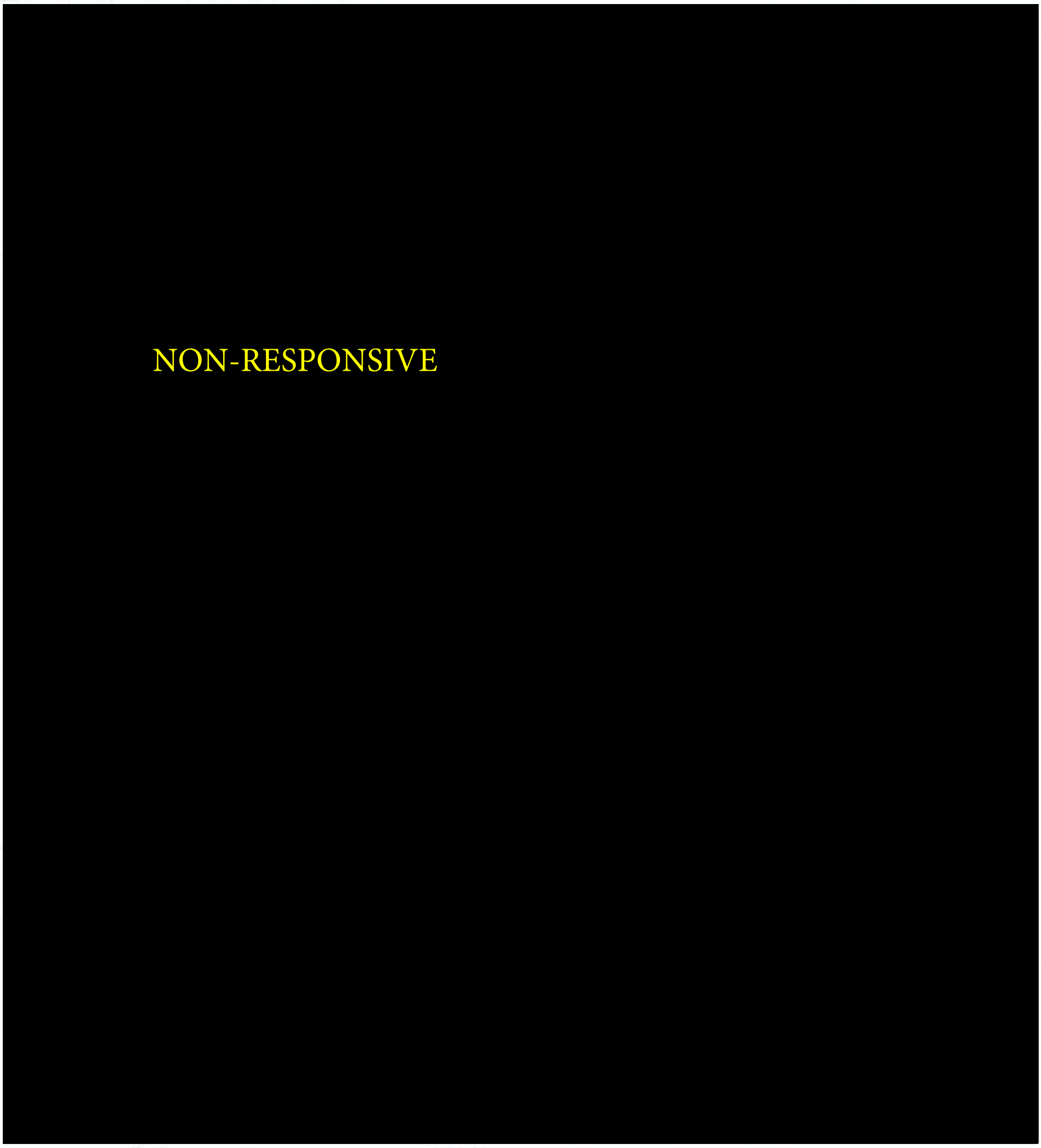
2 Foot Groundwater Level Contour

FIGURE 5-2

Summary of Groundwater Monitoring Results St. Peter Aquifer Second Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
CHECKED: B. GREGG	PROJECT: 1620-032		

CITY OF ST. LOUIS PARK



LEGEND

Reilly Site

N
W E
S

0 500 1,000 2,000 3,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppt)
Total Carcinogenic PAH (ppt)
Total Other PAH (ppt)
0 = Not detected
- = Not sampled

2 Foot Groundwater Level Contour

FIGURE 5-1

Summary of
Groundwater Monitoring Results
St. Peter Aquifer
First Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
CHECKED: B. GREGG	PROJECT: 1620-032		

5-1
Historical Su of Other PAH and CPAH Analytical Results
1988 Through 2003

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter (ng/l).

W33		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	16,430
10-88	0	12,455
8-90	0	290
4-91	0	17,912
8-91	0	9,921
6-92	0	3,448
11-92	14	3,304
4-93	0	1,334
7-93	0	1,000
5-94	8	968
11-94	0	1,700
5-95	0	1,901
10-95	0	1,062
5-96	0	566
10-96	0	655
4-97	0	651
10-97	0	1,779
4-98	0	2,516
9-98	0	4,792
4-99	2	2,383
9-99	0	1,355
5-00	235	1,139
9-00	1	925
5-01	0	1,411
9-01	6	698
6-02	0	80
9-02	1	54
6-03	66	115
9-03	35	175

W122		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	21	142
10-88	0	2,246
6-89	20	965
10-89	15	114
4-91	36	757
8-91	10	853
6-92	43	568
11-92	7	179
4-93	32	308
7-93	24	330
5-94	23	583
10-94	10	374
5-95	0	281
10-95	11	220
6-96	0	144
10-96	0	235
4-97	0	256
10-97	0	243
4-98	7	370
9-98	0	99
5-99	0	71
8-99	7	46
5-00	39	65
9-00	6	142
5-01	0	92
8-01	0	24
5-02	0	92
9-02	5	73
5-03	29	73
8-03	6	134

W129		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	88
10-88	0	290
6-89	0	27
10-89	0	43
6-90	0	143
8-90	0	96
4-91	27	159
8-91	0	430
6-92	47	247
11-92	5	296
4-93	15	121
7-93	2	53
5-94	0	171
11-94	2	110
5-95	12	94
10-95	0	55
6-96	0	53
10-96	0	75
4-97	0	104
10-97	0	181
4-98	9	88
9-98	0	8
5-99	1	79
8-99	0	80
5-00	26	223
9-00	8	150

W133		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	52,370
10-88	0	29,830
6-89	0	37,870
10-89	0	21,099
6-90	0	19,448
8-90	0	14,030
4-91	5	2,587
8-91	0	4,610
6-92	0	2,453
11-92	0	1,920
4-93	0	1,134
7-93	0	836
5-94	5	665
10-94	0	434
5-95	0	165
10-95	0	157
5-96	0	142
10-96	0	285
4-97	0	241
10-97	0	108
4-98	0	88
9-98	0	299
4-99	7	633
9-99	0	190
5-00	0	167
9-00	0	327
5-01	0	156
8-01	0	40
5-02	0	904
9-02	0	338
5-03	6	114
8-03	11	338

5-1
Historical Su of Other PAH and CPAH Analytical Results
1988 Through 2003

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter (ng/l).

W408		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	2	151
10-88	0	34
6-89	5	145
10-89	0	110
6-90	0	24
8-90	28	130
4-91	13	343
8-91	25	1,163
6-92	32	283
11-92	2	172
4-93	4	150
7-93	6	217
5-94	5	70
11-94	0	170
5-95	9	143
10-95	15	135
6-96	0	66
10-96	0	103
4-97	0	169
10-97	0	166
4-98	1	96
9-98	0	62
5-99	0	64
8-99	2	51
5-00	89	103
9-00	0	53

W409		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	159	2,198
10-88	0	890
6-89	53	571
10-89	0	830
6-90	0	141
8-90	43	200
4-91	0	360
8-91	0	3,833
6-92	0	49,660
11-92	0	49,399
4-93	0	50,060
7-93	0	42,440
5-95	0	173,000
10-95	0	167,000
4-96	0	805,420
10-96	0	312,500
5-97	0	157,000
9-97	0	64,000
5-98	0	159,200
9-98	0	107,700
4-99	0	446,860
8-99	0	342,000
5-00	0	1,196,900
9-00	620	468,710
5-01	0	269,800
8-01	0	228,300
5-02	0	324,300
9-02	0	135,200
5-03	0	170,600
8-03	0	213,700

W410		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	1,288
10-88	0	1,435
6-89	5	424
10-89	0	357
4-91	0	85
8-91	0	5,330
2-92	0	14,070
6-92	0	12,850
11-92	0	16,470
4-93	0	17,600
7-93	0	16,609
5-94	0	14,505
10-94	0	20,880
5-95	0	21,640
10-95	0	13,940
5-96	0	15,970
10-96	0	14,170
4-97	0	14,690
10-97	0	10,150
4-98	0	8,620
5-98	0	1,900
9-98	0	9,690
11-98	0	5,942
3-99	0	8,780
4-99	0	21,606
9-99	0	8,780
11-99	0	3,800
2-00	0	4,750
5-00	0	6,502
9-00	0	6,269
12-00	0	1,500
3-01	0	2,940
5-01	0	6,217
9-01	0	2,854
3-02	0	2,090
6-02	0	2,142
9-02	0	3,327
6-03	0	4,593
9-03	0	4,332

W411		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	1,274
10-88	0	1,161
6-89	8	200
10-89	0	460
6-90	15	451
8-90	0	336
4-91	12	384
8-91	0	251
6-92	24	313
11-92	1	181
4-93	7	189
7-93	5	113
5-94	3	120
11-94	6	219
5-95	6	235
10-95	1	183
6-96	0	79
10-96	0	253
4-97	0	82
10-97	3	253
4-98	1	120
9-98	61	424
5-99	0	99
8-99	0	79
5-00	0	56
9-00	17	138
5-01	0	124
8-01	0	46
5-02	0	34
9-02	0	16
5-03	38	113
8-03	0	57

5-1
Historical Su of Other PAH and CPAH Analytical Results
1988 Through 2003

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter (ng/l).

W412		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	8	1,309
10-88	0	209
6-89	18	211
10-89	0	132
8-90	1	484
4-91	48	1,470
8-91	0	5,283
6-92	12	1,319
11-92	0	3,796
4-93	154	842
7-93	16	777
5-94	25	291
10-94	10	538
5-95	18	369
10-95	0	402
5-96	0	139
10-96	0	1,620
4-97	0	806
10-97	0	614
4-98	30	260
9-98	60	557
4-99	20	267
9-99	0	764
5-00	250	105
9-00	1	164
5-01	4	363
8-01	0	1125
5-02	10	243
9-02	3	135
5-03	12	82
8-03	15	130

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene	indeno(1,2,3-cd)pyrene
benzo(a)pyrene	quinoline*
benzo(b)flouranthene	benzo(j)fluoranthene**
chrysene	benzo(g,h,i)perylene
dibenz(a,h)anthracene	

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included with the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)fluoranthene can not be consistantly separated by the laboratory. Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene	2,3-dihydroindene
acenaphthylene	fluoranthene
acridine	fluorene
anthracene	indene
benzo(k)fluoranthene	indole
2,3-benzofuran	1-methylnaphthalene
benzo(e)pyrene	2-methylnaphthalene
benzo(b)thiophene	naphthalene
biphenyl	perylene
carbazole	phenanthrene
dibenzofuran	pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit.

6.0 DRIFT-PLATTEVILLE AQUIFER SOURCE AND GRADIENT CONTROL WELLS

Groundwater monitoring for the Drift and Platteville Aquifers in 2003 included quarterly PAH monitoring of wells W420 and W439, the active Drift Aquifer source and gradient control wells, and W421 and W434, the Platteville Aquifer source and gradient control wells. Wells W420 and W421 have been monitored quarterly since they began pumping in 1987. This is the ninth year of quarterly monitoring for well W439 since pumping began in early 1995 and the seventh year of quarterly monitoring for well W434 since the pump was activated in June 1997. Average pumping rates for wells W420, W421, W434, and W439 were 33, 23, 26, and 44 gpm, respectively. The monitoring data are presented on Figures 6-1, 6-2, 6-3, and 6-4. The laboratory reports of the analytical data are included in the Appendices. Please refer to the Guide to Appended Laboratory Results for 2003 that precedes the Appendices to locate the individual sample results.

Other PAH, carcinogenic PAH and phenolic data for wells W420, W421, W434, and W439 are summarized in Table 6-1. The trends of these data suggest a gradual decreasing trend in total PAH concentrations in wells W434 and W439 since pumping started in each well. The 2003 total Other PAH concentrations in well W420 averaged approximately 3,400 ug/l in 2003 and indicate a stable PAH concentration. No carcinogenic PAH have ever been detected in well W420. The 2003 total Other PAH concentrations in well W421 averaged approximately 2,000 ug/l and well W439 averaged 1,200 ug/l. Total Other PAH concentrations in well W434 averaged approximately 4 ug/l in 2003. Carcinogenic PAH was detected in W421 at an average concentration of 365 ug/l in 2003.

The evaluation of the effectiveness of each source and gradient control well is provided in Section 7.0 and 8.0 of this report.

Former Drift Aquifer gradient control well W422 continues to be monitored, but is no longer used for pumping. Well W422 was inactivated in October 2000 in accordance with the Agencies' approval letter dated October 3, 2000, because it was no longer needed to control the spread of PAH in the Drift Aquifer. The total Other PAH concentrations in well W422 continued to decrease during 2003.

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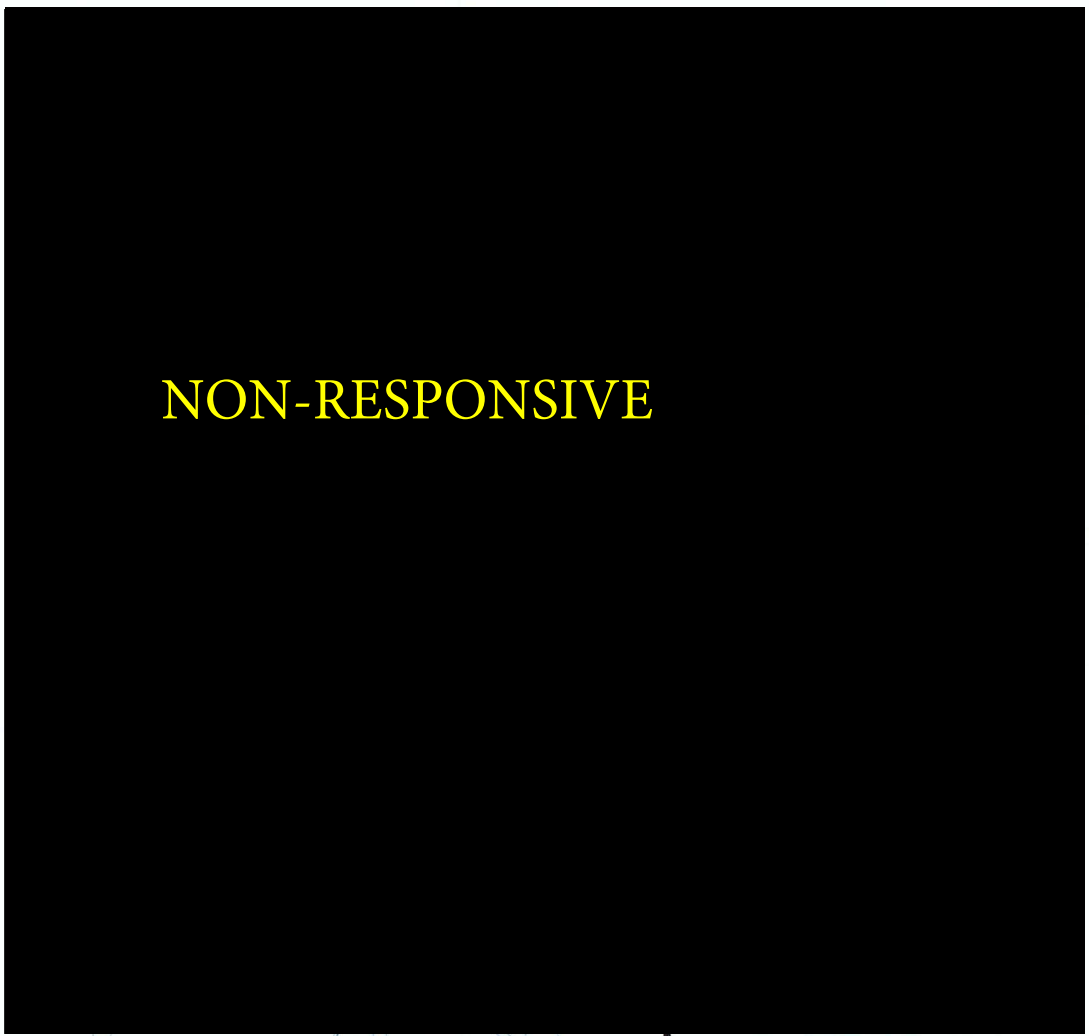

N

REILLY SITE

WELL LOCATION
W420 WELL IDENTIFICATION
– WATER LEVEL
0 SUM–BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0 SUM–CARCINOGENIC PAH (PPB)
3,558 SUM–OTHER PAH'S (PPB)
– TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter equivalent to parts per billion

FIGURE 6–1

SUMMARY OF GROUND WATER MONITORING RESULTS FOR DRIFT–PLATTVILLE AQUIFER MARCH 2003 FIRST QUARTER

DRAWN: A. TARARA	DATE: 2/27/04	REV:	ENSR INTERNATIONAL
CHECKED: WMG	PROJECT: 01620–032		

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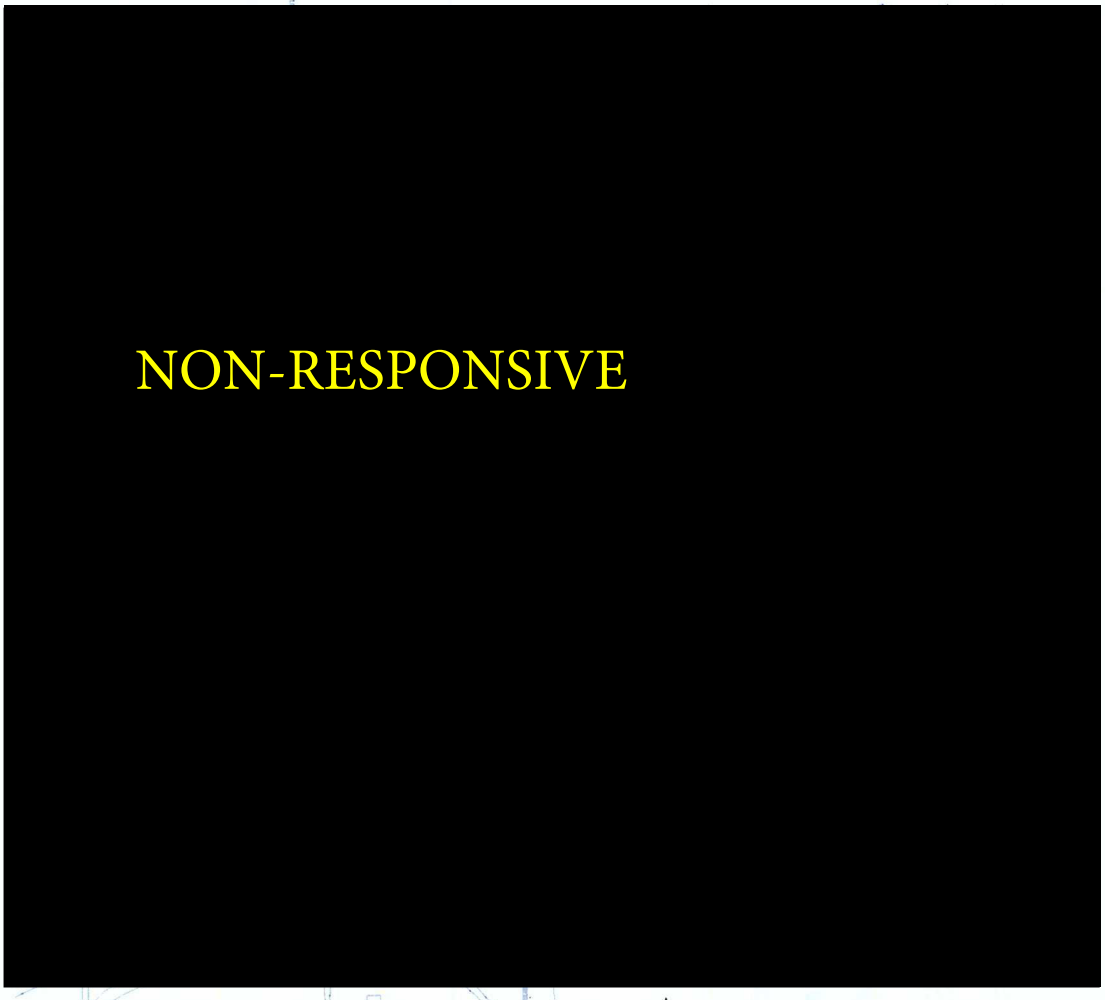

REILLY SITE

▲	WELL LOCATION
W420	WELL IDENTIFICATION
883.45	WATER LEVEL
0	SUM–BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0	SUM–CARCINOGENIC PAH (PPB)
4,122	SUM–OTHER PAH'S (PPB)
–	TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter equivalent to parts per billion

FIGURE 6–2

SUMMARY OF GROUND WATER MONITORING RESULTS FOR DRIFT–PLATTVILLE AQUIFER MAY 2003 SECOND QUARTER

DRAWN:	A. TARARA	DATE:	2/27/04	REV:
CHECKED:	WMG	PROJECT:	01620–032	

ENSR

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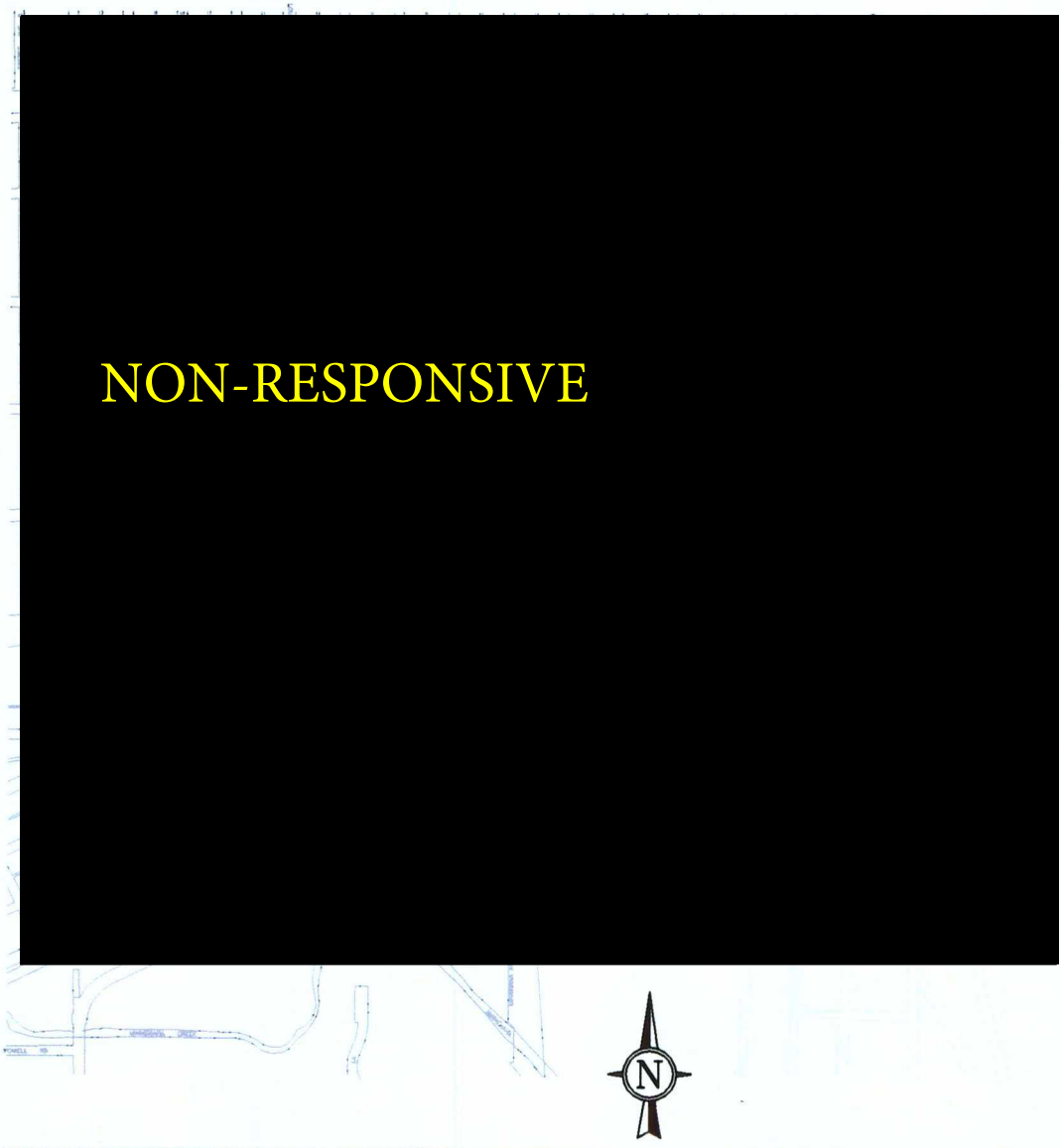


REILLY SITE

▲	WELL LOCATION
W420	WELL IDENTIFICATION
875.09	WATER LEVEL
0	SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0	SUM-CARCINOGENIC PAH (PPB)
3,148	SUM-OTHER PAH'S (PPB)
-	TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter equivalent to parts per billion

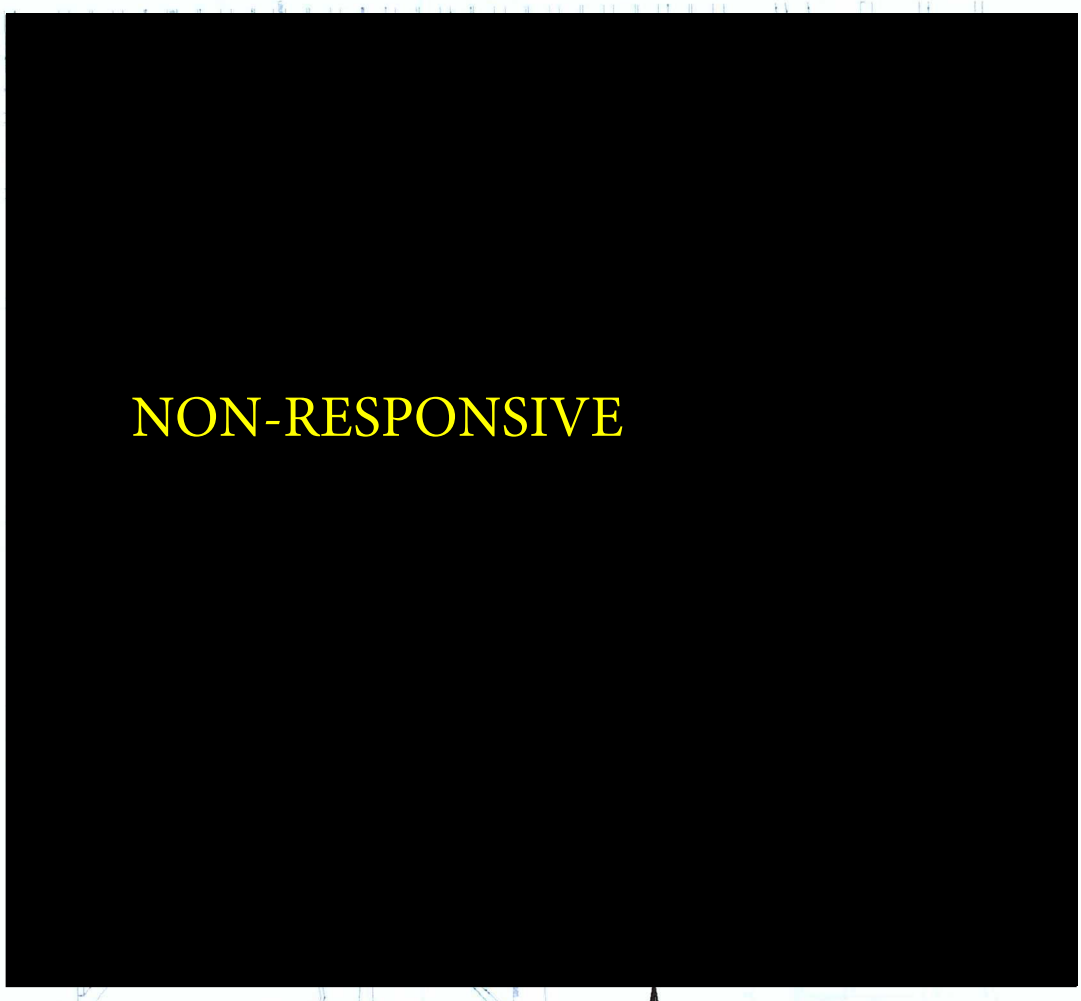
FIGURE 6-3

SUMMARY OF GROUND WATER MONITORING RESULTS FOR DRIFT-PLATTVILLE AQUIFER AUGUST 2003 THIRD QUARTER

DRAWN:	A. TARARA	DATE:	2/27/04	REV:
CHECKED:	WMG	PROJECT:	01620-032	

ENSR

CITY OF ST. LOUIS PARK



REILLY SITE

▲ WELL LOCATION
W420 WELL IDENTIFICATION
– WATER LEVEL
0 SUM–BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0 SUM–CARCINOGENIC PAH (PPB)
2,835 SUM–OTHER PAH'S (PPB)
– TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter equivalent to parts per billion

FIGURE 6–4

SUMMARY OF GROUND WATER MONITORING RESULTS FOR DRIFT–PLATTVILLE AQUIFER NOVEMBER 2003 FOURTH QUARTER

DRAWN: A. TARARA	DATE: 2/27/04	REV:	ENSR
CHECKED: WMG	PROJECT: 01620–032		

Table 6-1

Historical Summary of Other PAH and CPAH and Phenolics Wells W420, W421, W422, W434 and W439 1988 Through 2003

All concentrations in micrograms per liter (ug/l)

W420			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
1st Quarter	0[3]	3,242	440
2nd Quarter	0	3,420	330
8-88	0	2,477	220
10-88	0	1,148	44
3-89	0	2,400	120
6-89	0	3,400	129
9-89	0	3,400	220
12-89	0	3,400	110
3-90	0	3,950	239
5-90	0	2,430	231
8-90	0	3,150	244
12-90	0	3,030	228
3-91	0	4,200	232
6-91	0	2,494	221
9-91	0	4,967	210
10-91	0	4,163	194
2-92	0	1,526	177
6-92	0	3,229	204
9-92	0	2,281	167
10-92	0	2,374	236
3-93	0	4,337	18
4-93	0	2,929	207
8-93	0	1,825	136
11-93	0	2,052	148
2-94	0	2,033	109
6-94	0	2,181	151
8-94	0	2,026	147
10-94	0	2,082	151
3-95	0	2,431	143
5-95	0	1,873	134
9-95	0	2,523	91
10-95	0	2,332	113
2-96	0	1,968	121
4-96	0	2,165	130
7-96	0	2,725	87
10-96	0	2,164	118
2-97	0	2,324	122
5-97	0	3,343	134
9-97	0	2,151	261
1-98	0	2,483	140
2-98	0	2,938	124
5-98	0	2,933	160
9-98	0	3,144	80
11-98	0	2,570	180
3-99	0	3,314	200
4-99	0	3,414	170
8-99	0	2,425	140
11-99	0	2,345	170
2-00	0	2,312	150
5-00	0	4,441	190
9-00	0	3,070	110
12-00	0	2,500	90
3-01	0	3,680	110
5-01	0	6,956	300
8-01	0	2,535	140
10-01	0	3,608	190
3-02	0	8,578	110
5-02	0	4,163	NA
9-02	0	3,981	NA
10-02	0	3,456	NA
3-03	0	3,558	NA
5-03	0	4,122	NA
8-03	0	3,148	NA
11-03	0	2,835	NA

W421			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
1st Quarter	0	566	33
2nd Quarter	0	821	0
8-88	0	764	30
10-88	0	1,107	36
3-89	0	878	29
6-89	0	1,000	26
9-89	0	1,000	33
12-89	0	730	27
3-90	0	1,420	33
5-90	0	715	29
8-90	0	1,410	36
12-90	0	1,145	29
3-91	0	1,449	30
6-91	10	1,389	31
9-91	0	1,226	27
10-91	0	1,286	30
2-92	0	988	31
6-92	0	1,163	26
9-92	0	1,547	28
10-92	0	1,299	45
3-93	0	1,332	15
4-93	0	1,184	21
8-93	0	1,025	32
11-93	0	1,017	29
2-94	0	1,045	14
6-94	0	939	17
8-94	0	788	31
10-94	0	966	24
3-95	0	949	31
5-95	0	911	19
9-95	0	966	29
10-95	0	764	20
2-96	0	618	28
4-96	0	630	123
7-96	0	884	24
10-96	0	843	24
2-97	0	709	26
5-97	0	741	27
9-97	0	699	25
1-98	0	787	26
2-98	0	915	20
5-98	0	684	21
9-98	0	306	5
11-98	0	518	26
3-99	0	393	21
4-99	0	611	21
8-99	0	389	25
11-99	0	479	12
2-00	0	462	23
5-00	0	626	24
9-00	44	1,022	19
12-00	0	376	18
3-01	8	341	21
5-01	7	717	29
8-01	31	415	23
10-01	36	266	27
3-02	6	557	7
5-02	3	410	NA
9-02	0	551	NA
10-02	5	530	NA
3-03	430	1,302	NA
5-03	310	2,112	NA
8-03	5	545	NA
11-03	715	4,396	NA

Table 6-1

Historical Summary of Other PAH and CPAH and Phenolics
Wells W420, W421, W422, W434 and W439
1988 Through 2003

All concentrations in micrograms per liter (ug/l)

W434			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	4	9
10-96	0	4	NA
4-97	0	7	NA
9-97[4]	0	5	8
10-97	0	3	NA
1-98	0	4	0
2-98	0	3	5
5-98	0	3	5
9-98	0	73	0
11-98	0	12	0
3-99	0	14	0
4-99	0	1	0
8-99	0	1	6
11-99	0	1	0
2-00	0	2	0
5-00	0	5	3
9-00	0.27	4	0
12-00	0	1	0
3-01	0	3	5
5-01	0	6	6
9-01	0	4	NA
10-01	0	4	5
3-02	0	5	25
5-02	0	5	NA
9-02	0	5	NA
5-03	0	4	NA
8-03	0	3	NA

W439			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
3-95	0	3,933	91
5-95	0	4,053	74
9-95	0	2,564	54
10-95	0	2,115	60
2-96	0	1,552	46
4-96	0	1,419	43
7-96	0	1,765	43
10-96	0	1,557	45
2-97	0	1,277	43
5-97	0	1,683	48
9-97	0	1,547	42
1-98	0	1,236	34
2-98	0	1,377	31
5-98	0	1,221	35
9-98	0	978	12
11-98	0	954	53
3-99	0	1,385	29
4-99	0	1,278	31
8-99	0	766	45
11-99	0	1,123	17
2-00	0	1,081	31
5-00	0	1,975	31
9-00	0	1,859	26
12-00	0	1,187	37
3-01	0	1,498	34
5-01	0	1,623	37
8-01	0	1,056	NA
10-01	0	1,095	42
3-02	0	1,205	27
5-02	0	1,214	NA
9-02	0	1,027	NA
5-03	0	981	NA
8-03	0	1,535	NA

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene	chrysene	quinoline*
benzo(a)pyrene	dibenz(a,h)anthracene	benzo(j)fluoranthene**
benzo(b)flouranthene	indeno(1,2,3-cd)pyrene	benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.
**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)flouranthene can not be consistently separated by the laboratory. Therefore, if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene	benzo(e)pyrene	2,3-dihydroindene	1-methylnaphthalene
acenaphthylene	benzo(b)thiophene	fluoranthene	2-methylnaphthalene
acridine	biphenyl	fluorene	naphthalene
anthracene	carbazole	indene	perylene
benzo(k)fluoranthene	dibenzothiophene	indole	phenanthrene
2,3-benzofuran			pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit.

[4] Pump was activated in W434 in June of 1997

NA = Not analyzed for identified compound class.

7.0 PLATTEVILLE AQUIFER

In accordance with the 2003 Sampling Plan, 11 Platteville Aquifer monitoring wells were sampled twice in 2003. In addition to water quality monitoring, groundwater elevations were measured in 22 Platteville Aquifer wells on April 18, and August 1, 2003. Summaries of analytical data and groundwater elevations for the first and second half of 2003 are shown in Figures 7-1 and 7-2 respectively. Laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 2003 precedes the Appendices.

Table 7-1 is a historical summary since 1988 of Other PAH, carcinogenic PAH and phenolic data for Platteville Aquifer wells. The analytical results for all Platteville Aquifer wells are reported in micrograms per liter (ug/l), or parts per billion. The historical water quality data shown in Table 7-1 indicates a stable or decreasing trend in PAH concentrations in most Platteville Aquifer wells. The 2003 water quality data for the Platteville Aquifer indicates little change in the overall distribution of PAH compared to prior years.

The water level contours in Figures 7-1 and 7-2 illustrate the influence of the Platteville Aquifer source control wells on the regional east-southeast groundwater flow direction. Well W421 is currently being pumped at a rate of approximately 23 gpm, in accordance with the CD-RAP, and appears to be effective in controlling groundwater in an area at least the size of the bog between Walker and Lake Streets.

Figures 7-1 and 7-2 show that pumping well W434 has little effect on the Platteville Aquifer. Well W434 pumped at approximately 26 gpm in 2003. It appears that the well has a local effect in controlling groundwater in the Platteville Aquifer in the immediate area, however, due to the low transmissivity of the Platteville Aquifer in this area, the capture zone is limited. The capture zone of W434 is likely affected by leakage above from the Drift Aquifer recharging the Platteville Aquifer and this effect decreases the lateral extent of the capture area of W434.

Concentrations of PAH were detected in five of the 11 Platteville Aquifer monitoring wells sampled. The highest concentration was 5,977 ug/l detected in well W437. Carcinogenic PAH concentrations were not detected in any of the 11 wells sampled.

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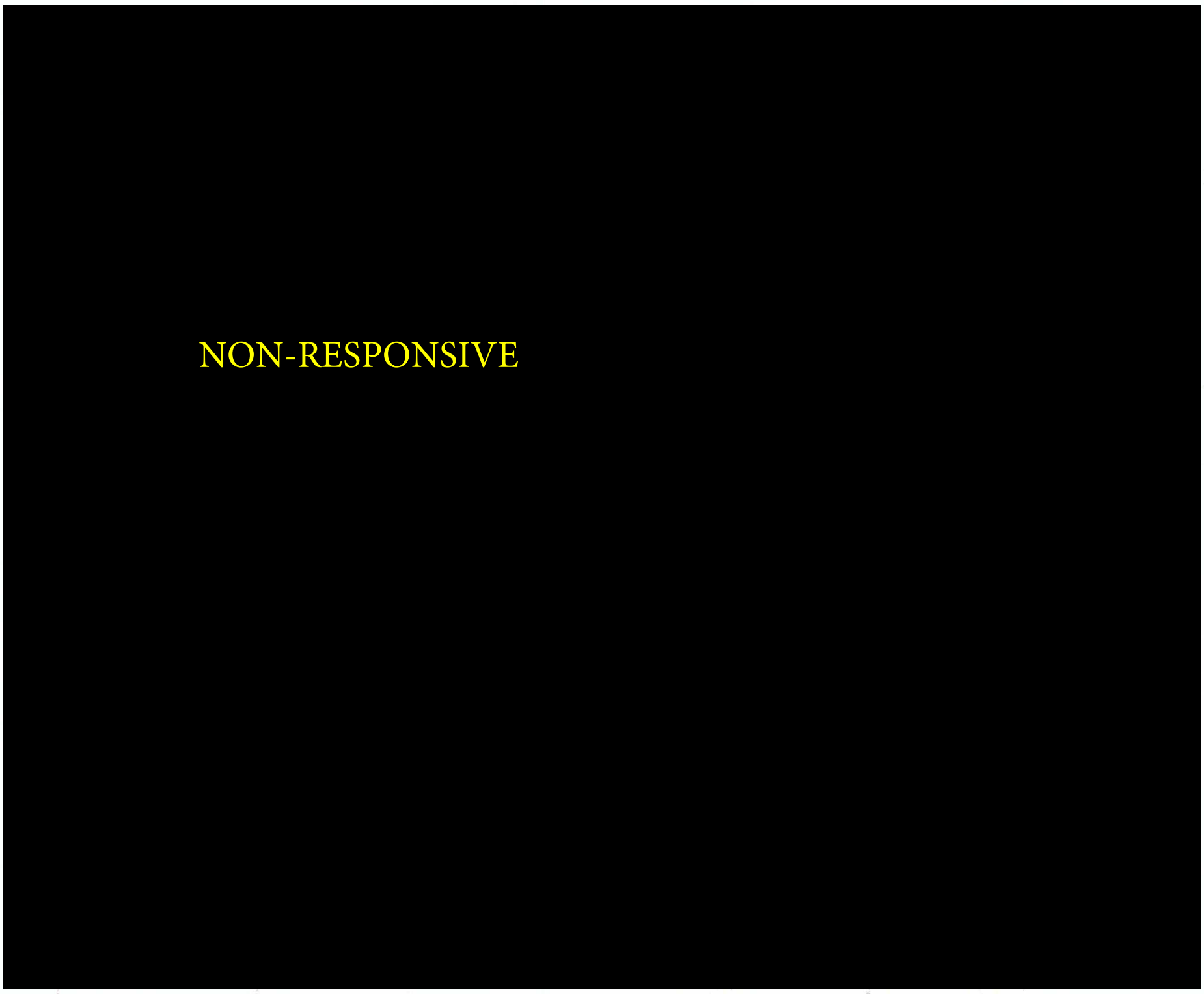

LEGEND

Reilly Site

N
W E
S

0 500 1,000 2,000 3,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppb)
Total Carcinogenic PAH (ppb)
Total Other PAH (ppb)
0 = Not detected
- = Not sampled

2 Foot Groundwater Level Contour

FIGURE 7-2

Summary of
Groundwater Monitoring Results
Platteville Aquifer
Second Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
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[redacted]

NON-RESPONSIVE

EXCELSIOR BLVD

MEADOWBROOK GOLF

LEGEND

Reilly Site

N
W E
S

0 500 1,000 2,000 3,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppb)
Total Carcinogenic PAH (ppb)
Total Other PAH (ppb)
0 = Not detected
- = Not sampled

2 Foot Groundwater Level Contour

FIGURE 7-1

Summary of
Groundwater Monitoring Results
Platteville Aquifer
First Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
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INFERRED AREA

W143 WELL LOCATION
WELL IDENTIFICATION

FIGURE 7-3

INFERRED AREA WHERE GROUNDWATER IN THE PLATTEVILLE AQUIFER EXCEEDS DRINKING WATER CRITERIA, 2003

DRAWN: A. TARARA	DATE: 2/27/04	PROJECT No.: 01620-032	ENSR INTERNATIONAL
FILE No.: FIG 7-3.dwg	CHECKED: WMG		

Table 7-1
Historical Summary of Other PAH, CPAH, and Phenolical Results
1988 through 2003

Platteville Aquifer Wells

PAH concentrations in micrograms per liter (ug/l)
Phenolic concentrations in micrograms per liter (ug/l)

W18			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0[3]	0	20
10-88	0	361	20
6-89	0	39	44
2-92	0	10	8
5-96	0	2	NA
9-96	0	2	NA
4-97	0	1	NA
9-97	0	1	NA
5-98	0	1	NA
9-98	0	0	NA
5-99	0	1	NA
9-99	0	1	NA
5-00	0	1	NA
9-00	0	1	NA

W19			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	0	35
6-89	0	0	26
2-92	0	0	0
5-94	0	0	0
5-96	0	0	NA
9-96	0	0	NA
4-97	0	0	NA
9-97	0	0	NA
5-98	0	0	NA
9-98	0	0	NA
5-99	0	0	NA
9-99	0	0	NA
5-00	0	0	NA
9-00	0	0	NA

W22			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-90	0	0	0
2-92	0	1	0
3-92	0	5	NA
5-96	0	0	NA
9-96	0	0	NA
4-97	0	2	NA
9-97	0	2	NA
4-98	0	1	NA
9-98	0	8	NA
4-99	0	22	NA
9-99	0	24	NA
5-00	0	3	NA
9-00	0	42	NA

W27			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
10-88	0	1,882	NA
6-89	0	1,345	NA
5-96	0	1	NA
10-96	0	9	NA
4-97	0	281	NA
9-97	0	416	NA
4-98	0	184	NA
9-98	0	422	NA
4-99	0	312	NA
8-99	0	158	NA
5-00	0	415	NA
9-00	0	243	NA
5-01	0	199	NA
8-01[4]	0	99	NA
5-02	0	123	NA
9-02	0	193	NA
5-03	0	89	NA
8-03	0	85	NA

W100			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-94	0	0	1

W20			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	28
10-88	0	3	16
6-89	0	6	34
5-90	0	7	9
5-94	0	1	0
5-96	0	1	NA
9-96	0	1	NA
4-97	0	2	NA
10-97	0	2	NA
5-98	0	1	NA
9-98	0	0	NA
5-99	0	1	NA
9-99	0	1	NA
5-00	0	1	NA
9-00	0	1	NA
5-01	0	0	NA
8-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	6	NA
8-03	0	5	NA

Table 7-1
Historical Summ ther PAH, CPAH, and Phenoli ical Results 1986 gh 2003

Platteville Aquifer Wells

PAH concentrations in micrograms per liter (ug/l)
Phenolic concentrations in micrograms per liter (ug/l)

W1			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	1	96
6-89	0	0	34
5-94	0	1	0
5-96	0	1	NA
9-96	0	0	NA
4-97	0	0	NA
9-97	0	1	NA
5-98	0	0	NA
9-98	0	0	NA
5-99	0	0	NA
9-99	0	0	NA
5-00	0	0	NA
9-00	0	0	NA

W121			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	73
10-88	0	0	35
6-89	0	0	35
5-90	0	0	0
5-94	0	0	0
5-96	0	0	NA
10-96	0	0	NA
4-97	0	0	NA
10-97	0	0	NA
5-98	0	0	NA
9-98	0	0	NA
5-99	0	0	NA
9-99	0	0	NA
5-00	0	0	NA
9-00	0	0	NA

W124			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	0	0
6-89	0	0	0
5-90	0	0	0
5-94	0	0	0
6-96	0	0	NA
9-96	0	0	NA
4-97	0	0	NA
10-97	0	0	NA
5-98	0	0	NA
9-98	0	0	NA
5-99	0	0	NA
9-99	0	0	NA
5-00	0	0	NA
9-00	0	0	NA

W101			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	4	7
10-88	0	23	0
6-89	0	48	20
5-90	0	22	0
2-92	0	18	6
5-94	0	11	0
5-96	0	5	NA
10-96	0	32	NA
4-97	0	31	NA
9-97	0	15	NA
4-98	0	17	NA
9-98	0	125	NA
4-99	0	32	NA
9-99	0	24	NA
5-00	0	41	NA
9-00	0	32	NA
4-01	0	18	NA
9-01[4]	0	12	NA
5-02	0	17	NA
9-02	0	6	NA
5-03	0	14	NA
8-03	0	3	NA

W130			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	0	0
6-89	0	0	0
5-90	0	0	0
5-96	0	0	NA
10-96	0	0	NA
4-97	0	0	NA
10-97	0	0	NA
5-98	0	0	NA
9-98	0	0	NA
5-99	0	0	NA
9-99	0	0	NA
5-00	0	0	NA
9-00	0	0	NA

W131			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	0	13
6-89	0	0	0
2-92	0	13	0
5-94	0	0	0
5-96	0	0	NA
10-96	0	0	NA
4-97	0	0	NA
10-97	0	0	NA
5-98	0	0	NA
9-98	0	0	NA
5-99	0	0	NA
9-99	0	0	NA
5-00	0	0	NA
5-01	0	0	NA
8-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

Table 7-1
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results
1988 Through 2003

Platteville Aquifer Wells

PAH concentrations in micrograms per liter (ug/l)
Phenolic concentrations in micrograms per liter (ug/l)

W143			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	0	0
6-89	0	1	33
5-96	0	1	NA
10-96	0	1	NA
4-97	0	9	NA
9-97	0	1	NA
4-98	0	4	NA
9-98	0	10	NA
4-99	0	15	NA
9-99	0	4	NA
5-00	0	0	NA
5-01	0	5	NA
9-01[4]	0	3	NA
5-02	0	10	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

W426			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	1	905	25
10-88	0	639	35
6-89	0	498	80
2-92	0	82	15
3-92	0	47	NA
5-96	0	55	NA
4-97	0	76	NA
9-97	0	64	NA
4-98	0	108	NA
9-98	0	1,508	NA
4-99	0	642	NA
8-99	0	258	NA
5-00	0	112	NA
9-00	0	160	NA
5-01	0	131	NA
8-01[4]	0	32	NA
5-02	0	564	NA
9-02	0	271	NA
5-03	0	574	NA
8-03	0	289	NA

W428			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	1	8
6-89	0	1	16
5-90	0	0	0
2-92	0	2	6
3-92	0	9	NA
5-94	0	0	0
5-96	0	0	NA
10-96	0	0	NA
4-97	0	0	NA
5-98	0	0	NA
9-98	0	1	NA
5-99	0	1	NA
9-99	0	0	NA
5-00	0	2	NA
9-00	0	1	NA
5-01	0	2	NA
8-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

W424			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	10
10-88	0	0	0
6-89	0	1	17
5-90	0	0	0
2-92	0	5	0
3-92	0	11	0
5-94	0	0	0
5-96	0	0	NA
10-96	0	0	NA
4-97	0	0	NA
9-97	0	0	NA
5-98	0	0	NA
9-98	0	0	NA
5-99	0	0	NA
9-99	0	0	NA
5-00	0	0	NA
9-00	0	0	NA

W430			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-90	0	0	0

W132			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-90	0	1	0

Table 7-1
Historical Summ[illegible]ther PAH, CPAH, and Phenol[illegible]ical Results
198[illegible]gh 2003

Platteville Aquifer Wells

PAH concentrations in micrograms per liter (ug/l)
Phenolic concentrations in micrograms per liter (ug/l)

W432

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	8	6
3-92	0	4	NA
5-96	0	1	NA
10-96	0	3	NA
4-97	0	10	NA
9-97	0	9	NA
4-98	0	9	NA
9-98	0	19	NA
4-99	0	33	NA
9-99	0	12	NA
5-00	0	13	NA
9-00	0	27	NA

W431

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	4	0
3-92	0	2	0
5-96	0	1	NA
10-96	0	2	NA
4-97	0	1	NA
9-97	0	1	NA
5-98	0	1	NA
9-98	0	0	NA
5-99	0	1	NA
9-99	0	0	NA
5-00	0	0	NA
9-00	0	0	NA
5-01	0	0	NA
8-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	6	NA
5-03	0	0	NA
8-03	0	0	NA

W433

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-96	0	0	NA
10-96	0	1	NA
4-97	0	0	NA
10-97	0	2	NA
5-98	0	1	NA
9-98	0	2	NA
4-99	0	3	NA
9-99	0	1	NA
5-00	0	1	NA
9-00	0	1	NA
5-01	0	1	NA
9-01[4]	0	1	NA
5-02	0	0	NA
9-02	0	3	NA
5-03	0	0	NA
8-03	0	0	NA

W435

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	0	0
3-92	0	1	0

W437

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	3,096	20
3-92	0	489	NA
5-01	0	6,305	NA
8-01[4]	0	5,342	NA
5-02	0	5,438	NA
9-02	0	5,292	NA
5-03	0	1,116	NA
8-03	0	5,977	NA

W438

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	20	5
3-92	0	0	NA
5-01	1	1	NA
9-01[4]	1	1	NA
5-02	0	5	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

Table 7-1
Historical Summ ther PAH, CPAH, and
Phenol cal Results
198 gh 2003

Platteville Aquifer Wells

PAH concentrations in micrograms per liter (ug/l)
Phenolic concentrations in micrograms per liter (ug/l)

W120			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	35	44
10-88	0	41	57
6-89	0	76	48
5-96	0	2	NA
10-96	0	11	NA
4-97	0	12	NA
9-97	0	6	NA
4-98	0	2	NA
9-98	0	4	NA
4-99	0	3	NA
9-99	0	2	NA
5-00	0	2	NA
9-00	0	2	NA

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene
benzo(a)pyrene
benzo(b)flouranthene
chrysene
dibenz(a,h)anthracene
indeno(1,2,3-cd)pyrene
quinoline*
benzo(j)fluoranthene**
benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)fluoranthene can not be consistantly separated by the laboratory. Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene
acenaphthylene
acridine
anthracene
benzo(k)fluoranthene
2,3-benzofuran
benzo(e)pyrene
benzo(b)thiophene
biphenyl
carbazole
dibenzofuran
dibenzothiophene
2,3-dihydroindene
fluoranthene
fluorene
indene
indole
1-methylnaphth
2-methylnaphth
naphthalene
perylene
phenanthrene
pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit, or were below 0.5 ug/l.

[4] For this report, the analytical results prior to 2002 have been rounded to the nearest part per billion.

NA = Not analyzed for identified compound class.

8.0 DRIFT AQUIFER

In accordance with the 2003 Sampling Plan, 11 Drift Aquifer monitoring wells were sampled twice in 2003. In addition to water quality monitoring, groundwater elevations were measured in 20 Drift Aquifer wells on April 18, and August 1, 2003. Summaries of analytical data and groundwater elevations for the first and second half of 2003 are shown in Figures 8-1 and 8-2 respectively. Laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 2003 precedes the Appendices.

Table 8-1 is a historical summary since 1988 of Other PAH, carcinogenic PAH, and phenolic data for the Drift Aquifer wells. The 2003 analytical results for all Drift Aquifer wells are reported in micrograms per liter (ug/l), or parts per billion. Some of the wells sampled indicate a decrease in total PAH concentrations from prior years.

PAH concentrations were found in five of the 11 wells sampled in 2003. Concentrations ranged from a high of 60 ug/l in P307 to a low of 4 ug/l in W422. Carcinogenic PAH were not detected above detection limits in any of the Drift Aquifer wells sampled in 2003. Water quality in the Drift Aquifer remains unchanged from prior years.

The water level contours illustrated in Figures 8-1 and 8-2 show that the source control well W420 is capturing the groundwater flow beneath the bog area located between Lake Street and Walker Street. The source control well W439 is limiting the further spread of PAH in the Northern Area of the Drift Aquifer. The two Drift Aquifer source control wells combine to limit the spread of PAH in the regional east-southeast groundwater flow direction.

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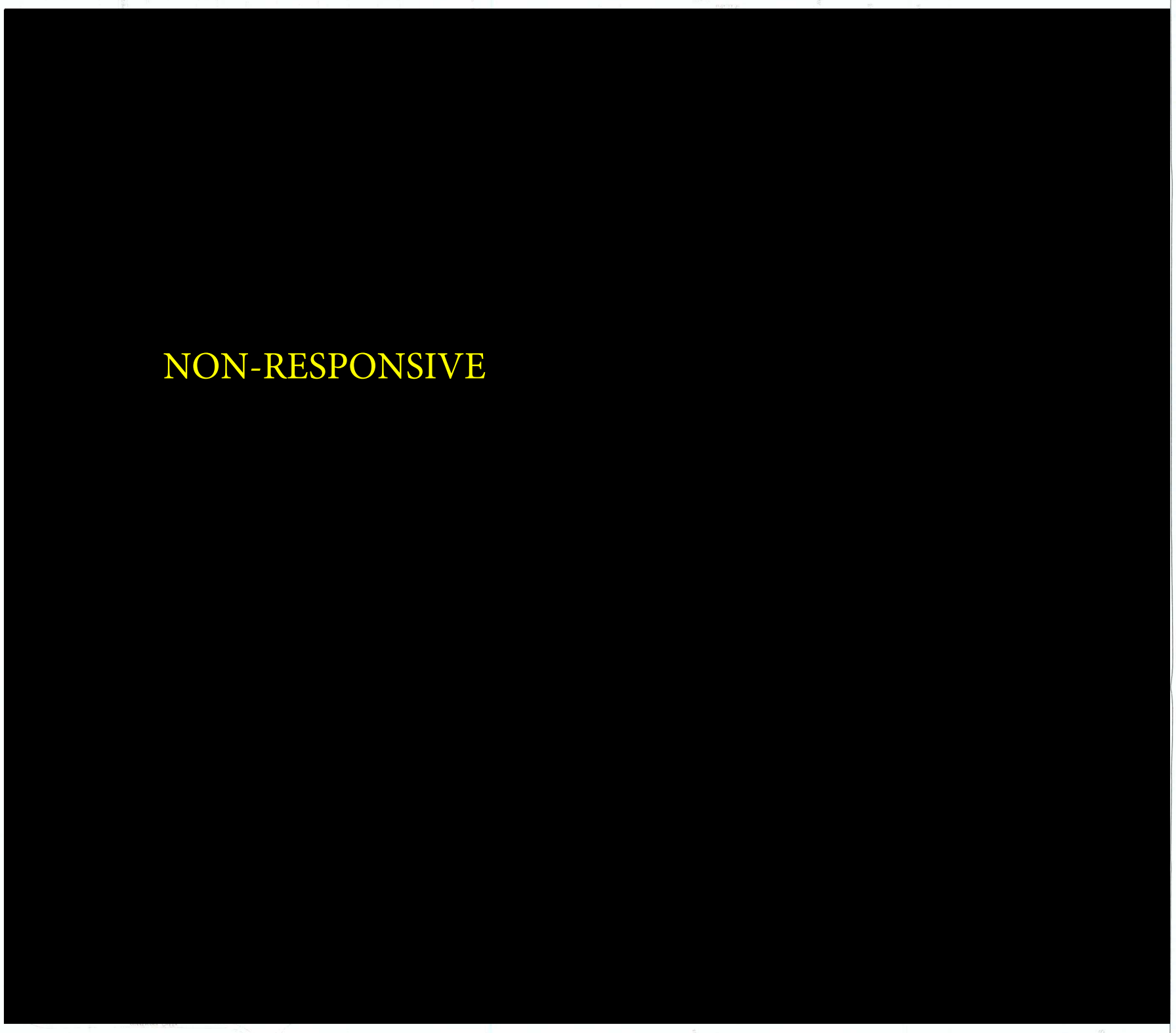


LEGEND

Reilly Site

N
W E
S

0 500 1,000 2,000 3,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppb)
Total Carcinogenic PAH (ppb)
Total Other PAH (ppb)
0 = Not detected
- = Not sampled

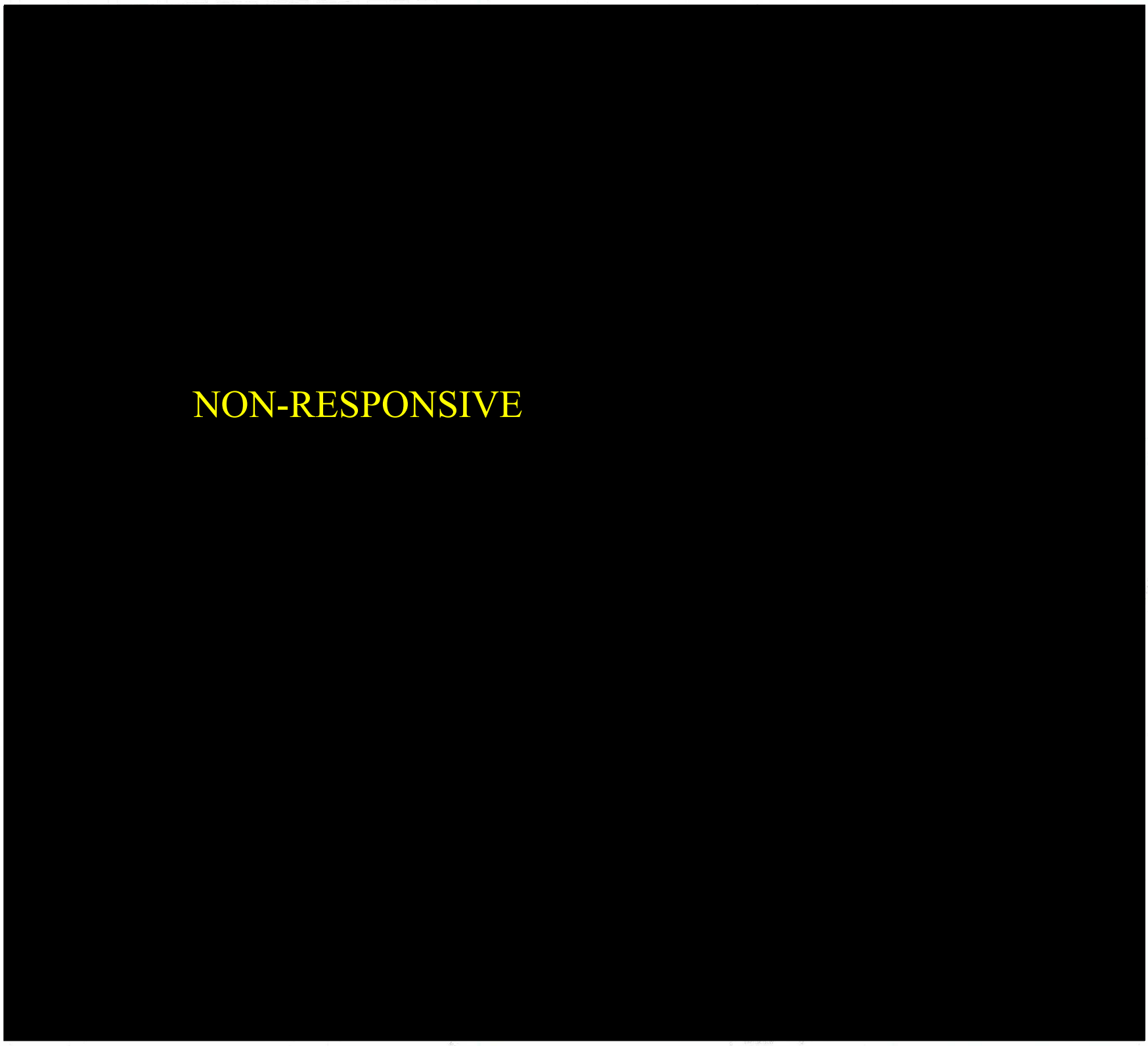
2 Foot Groundwater Level Contour

FIGURE 8-1

Summary of
Groundwater Monitoring Results
Drift Aquifer
First Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
CHECKED: B. GREGG	PROJECT: 1620-032		

CITY OF ST. LOUIS PARK



LEGEND

Reilly Site

N
W E
S

0 500 1,000 2,000 3,000 Feet

▲ Well ID
Water Level (ft)
Sum of Benzo(a)Pyrene and Dibenz(a,h)anthracene (ppb)
Total Carcinogenic PAH (ppb)
Total Other PAH (ppb)
0 = Not detected
- = Not sampled

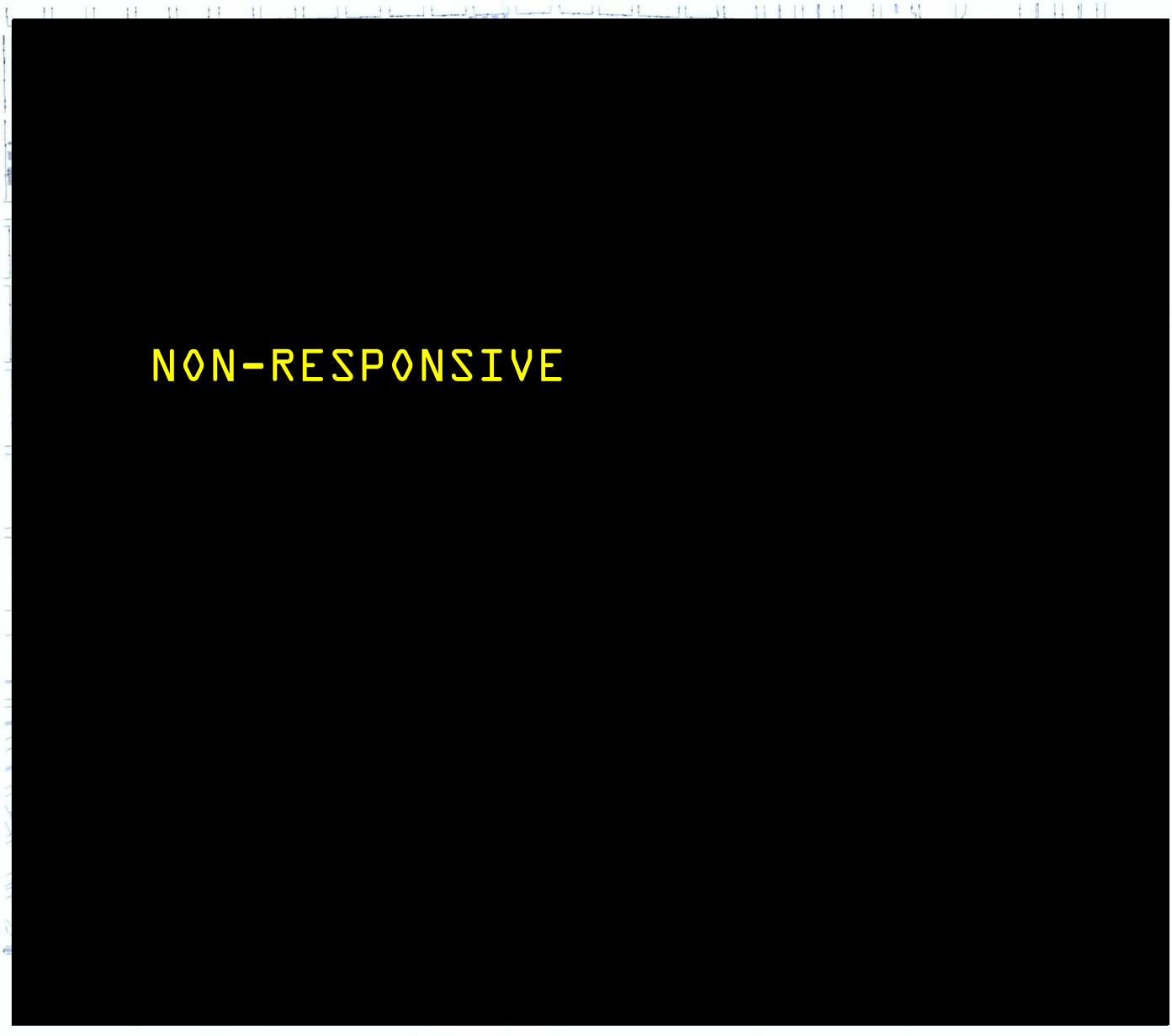
2 Foot Groundwater Level Contour

FIGURE 8-2

Summary of
Groundwater Monitoring Results
Drift Aquifer
Second Half, 2003

DRAWN: A. DESILETS	DATE: 2/23/2004	REV: 1	ENSR INTERNATIONAL
CHECKED: B. GREGG	PROJECT: 1620-032		

CITY OF ST. LOUIS PARK



INFERRED AREA

W128 WELL LOCATION
WELL IDENTIFICATION

FIGURE 8-3

INFERRED AREA WHERE GROUNDWATER IN THE DRIFT AQUIFER EXCEEDS DRINKING WATER CRITERIA, 2003

DRAWN: A. TARARA	DATE: 2/27/04	PROJECT No.: 01620-032	ENSR INTERNATIONAL
FILE No.: FIG 8-3.dwg	CHECKED: WMG		

Table 8-1
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results
1988 Through 2003

Drift Aquifer Wells

PAH concentrations in micrograms per liter (ug/l).
Phenolic concentrations in micrograms per liter (ug/l).

P109

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0 [3]	3	8
10-88	0	4	0
6-89	0	4	15.5
5-90	0	5	0
4-01	0	1	NA
9-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

W11

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	13	7.1
10-88	0	37	7.2
6-89	0	147	22.1
5-01	0	0	NA
Well Abandoned in 2001			

P307

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	226	18.5
8-01[4]	0	76	NA
5-02	0	42	NA
9-02	0	89	NA
5-03	0	42	NA
8-03	0	60	NA

P112

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	0	8.6
6-89	0	0	35.7
5-90	0	0	0
2-92	0	0	0
5-01	0	0	NA
8-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

P310

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	33	8
5-01	0	13	NA
8-01[4]	0	31	NA
5-02	0	14	NA
9-02	0	10	NA
5-03	0	16	NA
8-03	0	18	NA

P308

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	98	10.5
2-92	0	0	11.7
10-94	0	41	NA
5-01	0	2	NA
8-01[4]	0	12	NA
5-02	0	3	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

W117

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	2	8.3
10-88	0	18	0
6-89	0	28	13.5
5-90	0	29	10.5
2-92	0	1	0
5-94	0	5	0
10-94	0	2	NA
4-01	0	2	NA
9-01[4]	0	1	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

P312

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	14	13
2-92	0	23	15
4-01	0	3	NA
9-01[4]	0	4	NA
5-02	0	4	NA
9-02	0	5	NA
5-03	0	9	NA
8-03	0	32	NA

P309

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
6-89	0	1	0
4-91	0	318	22.5
5-01	0	27	NA
8-01[4]	0	40	NA
5-02	0	50	NA
9-02	0	24	NA
5-03	0	91	NA
8-03	0	43	NA

Table 8-1
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results
1988 Through 2003

Drift Aquifer Wells

PAH concentrations in micrograms per liter (ug/l).
Phenolic concentrations in micrograms per liter (ug/l).

W136			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	50
10-88	0	0	0
6-89	0	1	0
2-92	0	1	0
5-94	0	0	0
10-94	0	0	NA
5-01	0	0	NA
8-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

W427			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	7
10-88	0	0	0
6-89	0	1	0
5-90	0	0	0
2-92	0	5	0
10-94	0	0	NA
5-01[4]	0	0	NA
5-02	0	0	NA
9-02	0	0	NA
5-03	0	0	NA
8-03	0	0	NA

W422			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
1st Quarter	0	27	11
2nd Quarter	0	57	0
8-88	0	77	24
10-88	0	50	84
3-89	0	50	11
6-89	0	50	14
9-89	0	60	20
12-89	0	50	13
3-90	0	75	21
5-90	0	60	14
8-90	0	90	14
12-90	0	60	18
4-91	0	67	13
9-91	0	-	17
10-91	0	88	18
2-92	0	121	16
6-92	0	872	-
9-92	0	91	9
10-92	0	89	28
3-93	0	94	0
4-93	0	96	10
8-93	0	81	16
11-93	0	74	16
2-94	0	61	0
6-94	0	66	7
8-94	0	66	30
10-94	0	59	11
3-95	0	54	11
5-95	0	62	5
9-95	0	53	14
10-95	0	29	10
2-96	0	24	12
4-96	0	26	11
7-96	0	26	9
10-96	0	23	8
2-97	0	21	9
5-97	0	20	11
9-97	0	19	18
1-98	0	18	11
2-98	0	21	6
5-98	0	17	9
9-98	0	7	0
11-98	0	13	9
3-99	0	20	0
4-99	0	14	8
8-99	0	13	10
11-99	0	13	4
2-00	0	12	10
5-00	0	19	10
9-00	0	13	5
12-00	0	6	4
5-01	0	19	5
9-01	0	13	-
10-01	0	7	5
3-02	0	15	11
5-02	0	15	-
9-02	0	9	-
5-03	0	9	-
8-03	0	4	-

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene
benzo(a)pyrene
benzo(b)flouranthene
chrysene
dibenz(a,h)anthracene
indeno(1,2,3-cd)pyrene
quinoline*
benzo(j)fluoranthene**
benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)fluoranthene can not be consistantly separated by the laboratory. Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene
acenaphthylene
acridine
anthracene
benzo(k)fluoranthene
2,3-benzofuran
benzo(e)pyrene
benzo(b)thiophene
biphenyl
carbazole
dibenzofuran
dibenzothiophene
2,3-dihydroindene
fluoranthene
fluorene
indene
indole
1-methylnaphthalene
2-methylnaphthalene
naphthalene
perylene
phenanthrene
pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit, or were below 0.5 ug/l.

[4] For this report, the analytical results prior to 2002 have been rounded to the nearest part per billion.

NA = Not analyzed for identified compound class.

9.0 DATA QUALITY ASSESSMENT

In accordance with the 2003 Sampling Plan, all laboratory data packages underwent a data quality assessment (DQA) conducted by ENSR. Two laboratory data packages underwent a full validation following the "Region 5, Standard Operating Procedure for Validation of CLP Organic Data", (April 1991, Revised February 1997). One data package from each of the second and third quarter monitoring events was selected for the full validation.

The basis for the review, including the elements to be reviewed and applicable validation guidelines were defined in the Quality Assurance Project Plan (QAPP). The 2003 DQA was conducted as follows. The number of samples was checked to verify that the results corresponded to the analytical requests designated on the chain of custody. The chain of custody was examined to determine the completeness pertaining to sampling dates, times, quantities, and analyses performed. The sample holding times, preservation, and cooler temperatures were noted. The method blanks, field blanks, equipment blanks, and trip blanks were examined for any contamination problems. Surrogate spike recoveries were checked to confirm they were within the range determined by the QAPP QC limits. Matrix spikes and LCS were reviewed to confirm they meet the QC acceptance criteria. All duplicate samples were checked for precision. In addition, sample quantitation limits (SQLs) were compared to those required in the QAPP.

The full validation of 2003 data included all of the information in the DQA with additional assessment pertaining to the laboratory instrumentation and practices. This included initial and continuing instrument calibration, instrument tuning, compound identification, and internal standard performance. The results of the full validation can be found at the end of data packages J and U. Instrument calibration, tuning, compound identification, and internal standard performance were found to be valid for 2003. The data validation is generally used to determine whether or not the reported laboratory data may be used for decision-making purposes.

All 2003 laboratory data packages (labeled A through W) were reviewed by ENSR during the DQA. ENSR found that the data packages contain usable results for all wells that were sampled in 2003. Some of the surrogate recoveries were lower than the stated laboratory QAPP control limits. Therefore, any positive results for the samples with surrogates outside the control limits are estimated. All estimated data are included as part of the PAH sums that constitute Drinking Water Criteria and Advisory Levels for this project.

PAH were detected in a couple of the Method Blanks at concentrations less than five times the

reporting limit (SQL). All results with Method Blank concentrations are qualified with a "B". All concentrations qualified with a B are included in the total PAH calculations.

Field Blank contamination is not used to qualify laboratory data in Region V. Any Field Blank contamination was noted on the DQA reports.

Some non-detected results for benzo(e)pyrene and quinoline were rejected (e.g. Appendix U) since the compounds did not recover in the MS/MSD for a few of the samples in 2003.

Overall, the 2003 laboratory data was found to be usable for evaluating PAH concentrations in the groundwater and decision-making purposes. The overall completeness goal of 95% established in the QAPP was fulfilled in 2003.

This project benefits from years of collecting high quality data in accordance with the Agency approved Sampling Plan and QAPP. Therefore, an additional measure of quality assurance is gained by comparing current analytical results to the historical analytical results.

Criteria for validation actions were specified in the QAPP, data review worksheets, or the appropriate validation guidelines and were given precedence in that order. QAPP criteria were used for surrogate, MS/MSD, and LCS recoveries.

Validation actions were documented on internal data review worksheets and were summarized in the DQA reports that included the following:

- Samples included in the validation or data assessment,
- Validation guidelines used, including any project-specific modifications,
- Analyses performed,
- Review elements, and
- Discussion of validation/assessment results, including any qualifiers appended.

The DQA reports can be found at the backs of each laboratory data package for 2003.

The 2003 sampling data has been reviewed and the QAPP goals for field and laboratory completeness have been met. The Laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 2003 precedes the Appendices.

APPENDIX

GUIDE TO APPENDED LABORATORY RESULTS FOR ALL 2003 SAMPLES

Well Name	Analysis	1st Quarter	Appendix ID	2nd Quarter	Appendix ID	3rd Quarter	Appendix ID	4th Quarter	Appendix ID
Ironton-Galesville Aquifer									
W105	Not Sampled								
Mount Simon Hinckley Aquifer									
SLP 11	PPT 5					19-Aug	S		
SLP 12	PPT 5					19-Aug	S		
SLP 13	PPT 5					19-Aug	S		
SLP 17	Not Sampled								
Prairie du Chien-Jordan Aquifer									
SLP 4	PPT 5			20-May	K				
W 23	PPT 75					2-Sep	U		
SLP 6	PPT 5	10-Mar	B	27-May	L	19-Aug	S	4-Nov	W
SLP 7 or SLP 9	Not Sampled								
SLP 10 or SLP 15	PPT 75					2-Sep	U		
SLP 14	Not Sampled								
SLP 16	Not Sampled								
W 119	PPT 5							21-Oct	V
W 402	PPT 5			20-May	K				
W 403	PPT 5			20-May	K				
W 405 or W 406	Not Sampled								
W70	PPT 5			20-May	K				
W 29	PPT 5			20-May	K				
W 40	Not Sampled								
E 3	PPT 5					18-Aug	R		
H 6	Not Sampled								
MTKA 6	Not Sampled								
W48	PPT 5	10-Mar	B	20-May	K	19-Aug	S	21-Oct	V
W401	PPT 5					19-Aug	S		
E2	PPT 5					18-Aug	R		
E7	PPT 5					18-Aug	R		
E13	PPT 5					18-Aug	R		
E15	PPT 5					18-Aug	R		

GUIDE TO APPENDED LABORATORY RESULTS FOR ALL 2003 SAMPLES

Well Name	Analysis	1st Quarter	Appendix ID	2nd Quarter	Appendix ID	3rd Quarter	Appendix ID	4th Quarter	Appendix ID
St. Peter Aquifer									
SLP 3	PPT 5			19-May	J	25-Aug	T		
W 122	PPT 5			19-May	J	25-Aug	T		
W 411	PPT 5			19-May	J	25-Aug	T		
W 24	PPT 75			2-Jun	M	2-Sep	U		
W 33	PPT 75			2-Jun	M	2-Sep	U		
W 133	PPT 5			19-May	J	25-Aug	T		
W 410	PPT 75			2-Jun	M	2-Sep	U		
W 412	PPT 5			19-May	J	25-Aug	T		
W 409	PPB			13-May	I	12-Aug	O		
Drift-Platteville Aquifer Pumping Wells									
W 420	PAH-PPB	10-Mar	A	13-May	I	12-Aug	O	4-Nov	W
W 421	PAH-PPB	10-Mar	A	13-May	I	12-Aug	O	4-Nov	W
W 434	PAH-PPB			12-May	H	11-Aug	P		
W 439	PAH-PPB			5-May	D	4-Aug	N		
Platteville Aquifer									
W20	PPB			12-May	G	11-Aug	P		
W131	PPB			13-May	I	12-Aug	O		
W428	PPB			13-May	I	12-Aug	O		
W431	PPB			13-May	I	12-Aug	O		
W 101	PPB			12-May	G	11-Aug	P		
W433	PPB			12-May	G	11-Aug	P		
W27	PPB			12-May	G	11-Aug	P		
W143	PPB			13-May	I	12-Aug	O		
W437	PPB			12-May	G	11-Aug	P		
W438	PPB			13-May	I	12-Aug	O		
W426	PPB			12-May	G	11-Aug	P		
Drift Aquifer									
P109	PPB			6-May	F	5-Aug	Q		
P112	PPB			5-May	C	4-Aug	N		
P307	PPB			5-May	C	4-Aug	N		
P308	PPB			5-May	C	4-Aug	N		
P309	PPB			5-May	C	4-Aug	N		
P310	PPB			6-May	F	5-Aug	Q		
P312	PPB			6-May	F	5-Aug	Q		
W11	Not Sampled								
W117	PPB			6-May	F	5-Aug	Q		
W136	PPB			6-May	F	5-Aug	Q		
W422	PPB			6-May	E	5-Aug	Q		
W427	PPB			6-May	F	5-Aug	Q		

A

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3C110158

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

April 10, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3C110158

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Five samples were received under chain of custody on March 11, 2003. The samples were received in good condition temperatures of 2.2°C, 3.6°C, 4.6°C, 2.7°C, 2.3°C and 2.4°C.

Polynuclear Aromatic Hydrocarbons, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3C110158-001 and 002 were analyzed at a 10x dilution for 2,3-dihyroindene and at a 40x dilution for naphthalene, due to high concentrations of target compounds. Naphthalene is reported from the 1x dilution as well because the MS/MSD was performed on this sample. Sample 005 was analyzed at a dilution for fluoranthene, phenanthrene and pyrene due to high concentrations of target compounds. As a result of the required dilutions, the surrogate recoveries were not calculated because the sample amount was greater than four times the spike amount. It is the laboratory's policy to consider all surrogates in the analyses with dilution factors of four or greater to be diluted out.

The MS performed on sample D3C110158-001 demonstrated a recovery that was above control limits for naphthalene. The MSD was in control.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 99.5% completeness.

DATA COMPLETENESS CALCULATION		
LOT:	D3C110158	
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	6
MS Surrogates	3	3
MSD	7	7
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	15	15
Internal STD Area	27	27
TOTAL	**206**	**205**
% Completeness		**99.5%**

*A MS/MSD was performed on sample W420-031003.

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD Calculation Lot D3C110158					
Sample: W420-031003		**DUP: W420D-031003**			
Compound	**Result**	**Compound**	**Result**	**RPD**	**RPD>50%**
Acenaphthene	140	Acenaphthene	130	7.4	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	2.0	Anthracene	2.0	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	41	2,3-Benzofuran	39	5.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	120	Benzo(b)thiophene	120	0.0	
Biphenyl	21	Biphenyl	20	4.9	
Carbazole	79	Carbazole	75	5.2	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	46	Dibenzofuran	44	4.4	
Dibenzothiophene	9.8	Dibenzothiophene	9.5	3.1	
2,3-Dihydroindene	300	2,3-Dihydroindene	270	10.5	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	45	Fluorene	43	4.5	
Indene	33	Indene	31	6.3	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	140	2-Methylnaphthalene	130	7.4	
1-Methylnaphthalene	150	1-Methylnaphthalene	140	6.9	
Naphthalene	2400	Naphthalene	2300	4.3	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	31	Phenánthrene	30	3.3	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3C110158

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W420-031003 03/10/03 13:30 001				
Acenaphthene	140	10	ug/L	SW846 8270C
Anthracene	2.0 J	10	ug/L	SW846 8270C
2,3-Benzofuran	41	10	ug/L	SW846 8270C
Benzo(b)thiophene	120	10	ug/L	SW846 8270C
Biphenyl	21	10	ug/L	SW846 8270C
Carbazole	79	10	ug/L	SW846 8270C
Dibenzofuran	46	10	ug/L	SW846 8270C
Dibenzothiophene	9.8 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	300	100	ug/L	SW846 8270C
Fluorene	45	10	ug/L	SW846 8270C
Indene	33	10	ug/L	SW846 8270C
2-Methylnaphthalene	140	10	ug/L	SW846 8270C
1-Methylnaphthalene	150	10	ug/L	SW846 8270C
Naphthalene	720 E	10	ug/L	SW846 8270C
Naphthalene	2400	400	ug/L	SW846 8270C
Phenanthrene	31	10	ug/L	SW846 8270C
W420D-031003 03/10/03 13:30 002				
Acenaphthene	130	10	ug/L	SW846 8270C
Anthracene	2.0 J	10	ug/L	SW846 8270C
2,3-Benzofuran	39	10	ug/L	SW846 8270C
Benzo(b)thiophene	120	10	ug/L	SW846 8270C
Biphenyl	20	10	ug/L	SW846 8270C
Carbazole	75	10	ug/L	SW846 8270C
Dibenzofuran	44	10	ug/L	SW846 8270C
Dibenzothiophene	9.5 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	270	100	ug/L	SW846 8270C
Fluorene	43	10	ug/L	SW846 8270C
Indene	31	10	ug/L	SW846 8270C
2-Methylnaphthalene	130	10	ug/L	SW846 8270C
1-Methylnaphthalene	140	10	ug/L	SW846 8270C
Naphthalene	2300	400	ug/L	SW846 8270C
Phenanthrene	30	10	ug/L	SW846 8270C
W421-031003 03/10/03 13:50 005				
Acenaphthene	84	10	ug/L	SW846 8270C
Acenaphthylene	2.4 J	10	ug/L	SW846 8270C
Acridine	6.2 J	10	ug/L	SW846 8270C
Anthracene	33	10	ug/L	SW846 8270C
Benzo(a)anthracene	100	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	62	10	ug/L	SW846 8270C

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3C110158

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W421-031003 03/10/03 13:50 005				
Benzo(k)fluoranthene	59	10	ug/L	SW846 8270C
Benzo(ghi)perylene	27	10	ug/L	SW846 8270C
Benzo(a)pyrene	70	10	ug/L	SW846 8270C
Benzo(e)pyrene	43	10	ug/L	SW846 8270C
Benzo(b)thiophene	18	10	ug/L	SW846 8270C
Biphenyl	3.5 J	10	ug/L	SW846 8270C
Carbazole	21	10	ug/L	SW846 8270C
Chrysene	78	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	9.9 J	10	ug/L	SW846 8270C
Dibenzofuran	21	10	ug/L	SW846 8270C
Dibenzothiophene	12	10	ug/L	SW846 8270C
2,3-Dihydroindene	94	10	ug/L	SW846 8270C
Fluoranthene	380	50	ug/L	SW846 8270C
Fluorene	44	10	ug/L	SW846 8270C
Indene	25	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	24	10	ug/L	SW846 8270C
2-Methylnaphthalene	6.0 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	37	10	ug/L	SW846 8270C
Naphthalene	37	10	ug/L	SW846 8270C
Perylene	15	10	ug/L	SW846 8270C
Phenanthrene	150	50	ug/L	SW846 8270C
Pyrene	270	50	ug/L	SW846 8270C

METHODS SUMMARY

D3C110158

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3C110158

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Mark McDaniel	000998
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3C110158

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FJXAK	001	W420-031003	03/10/03	13:30
FJXAV	002	W420D-031003	03/10/03	13:30
FJXAW	003	W420FB-031003	03/10/03	13:45
FJXA0	004	W420FBD-031003	03/10/03	13:45
FJXA3	005	W421-031003	03/10/03	13:50

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110158-001	Work Order #...: FJXAK1AA	Matrix.....: WG
Date Sampled...: 03/10/03	Date Received..: 03/11/03	
Prep Date.....: 03/14/03	Analysis Date..: 03/26/03	
Prep Batch #...: 3073349	Analysis Time..: 18:10	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**140**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**2.0 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**41**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**120**	**10**	**ug/L**
Biphenyl	**21**	**10**	**ug/L**
Carbazole	**79**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**46**	**10**	**ug/L**
Dibenzothiophene	**9.8 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**45**	**10**	**ug/L**
Indene	**33**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**140**	**10**	**ug/L**
1-Methylnaphthalene	**150**	**10**	**ug/L**
Naphthalene	**720 E**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**31**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	94	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	67	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110158-001	Work Order #...: FJXAK2AA	Matrix.....: WG	
Date Sampled...: 03/10/03	Date Received..: 03/11/03		
Prep Date.....: 03/14/03	Analysis Date..: 03/27/03		
Prep Batch #...: 3073349	Analysis Time..: 09:34		
Dilution Factor: 10			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	**300**	**100**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	DIL,NC	(30 - 160)
Fluorene d-10	DIL,NC	(36 - 127)
Naphthalene-d8	DIL,NC	(37 - 107)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-031003

GC/MS Semivolatiles

Lot-Sample #...:	D3C110158-001	**Work Order #...:**	FJXAK3AA	**Matrix.....:**	WG
Date Sampled...:	03/10/03	**Date Received..:**	03/11/03		
Prep Date.....:	03/14/03	**Analysis Date..:**	03/27/03		
Prep Batch #...:	3073349	**Analysis Time..:**	11:30		
Dilution Factor:	40				
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	**2400**	**400**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	DIL,NC	(30 - 160)
Fluorene d-10	DIL,NC	(36 - 127)
Naphthalene-d8	DIL,NC	(37 - 107)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110158-002 Work Order #...: FJXAV1AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/14/03 Analysis Date..: 03/26/03
Prep Batch #...: 3073349 Analysis Time..: 20:04
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**130**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**2.0 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**39**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**120**	**10**	**ug/L**
Biphenyl	**20**	**10**	**ug/L**
Carbazole	**75**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**44**	**10**	**ug/L**
Dibenzothiophene	**9.5 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**43**	**10**	**ug/L**
Indene	**31**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**130**	**10**	**ug/L**
1-Methylnaphthalene	**140**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**30**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	86	(30 - 160)
Fluorene d-10	54	(36 - 127)
Naphthalene-d8	63	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-031003

GC/MS Semivolatiles

Lot-Sample #...:	D3C110158-002	**Work Order #...:**	FJXAV2AA	**Matrix.....:**	WG
Date Sampled...:	03/10/03	**Date Received..:**	03/11/03		
Prep Date.....:	03/14/03	**Analysis Date..:**	03/27/03		
Prep Batch #...:	3073349	**Analysis Time..:**	10:13		
Dilution Factor:	10				
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	**270**	**100**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	DIL,NC	(30 - 160)
Fluorene d-10	DIL,NC	(36 - 127)
Naphthalene-d8	DIL,NC	(37 - 107)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-031003

GC/MS Semivolatiles

Lot-Sample #...:	D3C110158-002	**Work Order #...:**	FJXAV3AA	**Matrix.....:**	WG
Date Sampled...:	03/10/03	**Date Received..:**	03/11/03		
Prep Date.....:	03/14/03	**Analysis Date..:**	03/27/03		
Prep Batch #...:	3073349	**Analysis Time..:**	12:08		
Dilution Factor:	40				
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	**2300**	**400**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	DIL,NC	(30 - 160)
Fluorene d-10	DIL,NC	(36 - 127)
Naphthalene-d8	DIL,NC	(37 - 107)

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: W420FB-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110158-003 **Work Order #...:** FJXAW1AA **Matrix.....:** WG
Date Sampled...: 03/10/03 **Date Received..:** 03/11/03
Prep Date.....: 03/14/03 **Analysis Date..:** 03/26/03
Prep Batch #...: 3073349 **Analysis Time..:** 20:43
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	105	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	73	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W420FBD-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110158-004	**Work Order #...:** FJXA01AA	**Matrix.....:** WG	
Date Sampled...: 03/10/03	**Date Received..:** 03/11/03		
Prep Date.....: 03/14/03	**Analysis Date..:** 03/26/03		
Prep Batch #...: 3073349	**Analysis Time..:** 21:21		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	101	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	68	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W421-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110158-005 Work Order #...: FJXA31AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/14/03 Analysis Date..: 03/26/03
Prep Batch #...: 3073349 Analysis Time..: 21:59
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	84	10	ug/L
Acenaphthylene	2.4 J	10	ug/L
Acridine	6.2 J	10	ug/L
Anthracene	33	10	ug/L
Benzo(a)anthracene	100	10	ug/L
Benzo(b)fluoranthene	62	10	ug/L
Benzo(k)fluoranthene	59	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	27	10	ug/L
Benzo(a)pyrene	70	10	ug/L
Benzo(e)pyrene	43	10	ug/L
Benzo(b)thiophene	18	10	ug/L
Biphenyl	3.5 J	10	ug/L
Carbazole	21	10	ug/L
Chrysene	78	10	ug/L
Dibenzo(a,h)anthracene	9.9 J	10	ug/L
Dibenzofuran	21	10	ug/L
Dibenzothiophene	12	10	ug/L
2,3-Dihydroindene	94	10	ug/L
Fluorene	44	10	ug/L
Indene	25	10	ug/L
Indeno(1,2,3-cd)pyrene	24	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	6.0 J	10	ug/L
1-Methylnaphthalene	37	10	ug/L
Naphthalene	37	10	ug/L
Perylene	15	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	76	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W421-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110158-005	**Work Order #...:** FJXA32AA	**Matrix.....:** WG	
Date Sampled...: 03/10/03	**Date Received..:** 03/11/03		
Prep Date.....: 03/14/03	**Analysis Date..:** 03/27/03		
Prep Batch #...: 3073349	**Analysis Time..:** 12:46		
Dilution Factor: 5			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Fluoranthene	**380**	**50**	**ug/L**
Phenanthrene	**150**	**50**	**ug/L**
Pyrene	**270**	**50**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	DIL,NC	(30 - 160)
Fluorene d-10	DIL,NC	(36 - 127)
Naphthalene-d8	DIL,NC	(37 - 107)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

QC DATA ASSOCIATION SUMMARY

D3C110158

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3073349	3073137
002	WG	SW846 8270C		3073349	3073137
003	WG	SW846 8270C		3073349	3073137
004	WG	SW846 8270C		3073349	3073137
005	WG	SW846 8270C		3073349	3073137

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110158 **Work Order #...:** FJ6331AA **Matrix.....:** WATER
MB Lot-Sample #: D3C140000-349

Prep Date.....: 03/14/03 **Analysis Time..:** 16:54
Analysis Date..: 03/26/03 **Prep Batch #...:** 3073349
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	115	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	74	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110158 **Work Order #...:** FJ6331AC **Matrix.....:** WATER
LCS Lot-Sample#: D3C140000-349
Prep Date.....: 03/14/03 **Analysis Date..:** 03/26/03
Prep Batch #...: 3073349 **Analysis Time..:** 17:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**86**	**(30 - 150)**	**SW846 8270C**
Chrysene	**104**	**(43 - 124)**	**SW846 8270C**
Fluorene	**78**	**(51 - 120)**	**SW846 8270C**
Indene	**76**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**69**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**77**	**(43 - 128)**	**SW846 8270C**
Quinoline	**73**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	110	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	76	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110158 **Work Order #...:** FJ6331AC **Matrix.....:** WATER
LCS Lot-Sample#: D3C140000-349
Prep Date.....: 03/14/03 **Analysis Date..:** 03/26/03
Prep Batch #...: 3073349 **Analysis Time..:** 17:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**42.9**	**ug/L**	**86**	**SW846 8270C**
Chrysene	**50.0**	**51.8**	**ug/L**	**104**	**SW846 8270C**
Fluorene	**50.0**	**38.9**	**ug/L**	**78**	**SW846 8270C**
Indene	**50.0**	**37.8**	**ug/L**	**76**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**34.6**	**ug/L**	**69**	**SW846 8270C**
Naphthalene	**50.0**	**38.3**	**ug/L**	**77**	**SW846 8270C**
Quinoline	**50.0**	**36.4**	**ug/L**	**73**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	110	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	76	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110158 **Work Order #...:** FJXAK1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3C110158-001 FJXAK1AD-MSD
Date Sampled...: 03/10/03 **Date Received..:** 03/11/03
Prep Date.....: 03/14/03 **Analysis Date..:** 03/26/03
Prep Batch #...: 3073349 **Analysis Time..:** 18:48
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**82**	**(30 - 150)**			**SW846 8270C**
	73	**(30 - 150)**	**11**	**(0-30)**	**SW846 8270C**
Chrysene	**96**	**(43 - 124)**			**SW846 8270C**
	87	**(43 - 124)**	**11**	**(0-30)**	**SW846 8270C**
Fluorene	**98**	**(51 - 120)**			**SW846 8270C**
	91	**(51 - 120)**	**3.8**	**(0-30)**	**SW846 8270C**
Indene	**62**	**(49 - 108)**			**SW846 8270C**
	71	**(49 - 108)**	**6.3**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**98**	**(47 - 138)**			**SW846 8270C**
	96	**(47 - 138)**	**0.55**	**(0-30)**	**SW846 8270C**
Naphthalene	**216 a**	**(43 - 128)**			**SW846 8270C**
	110	**(43 - 128)**	**6.3**	**(0-30)**	**SW846 8270C**
Quinoline	**81**	**(40 - 126)**			**SW846 8270C**
	78	**(40 - 126)**	**4.0**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	104	(30 - 160)
	76	(30 - 160)
Fluorene d-10	62	(36 - 127)
	61	(36 - 127)
Naphthalene-d8	67	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110158 **Work Order #...:** FJXAK1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3C110158-001 FJXAK1AD-MSD
Date Sampled...: 03/10/03 **Date Received..:** 03/11/03
Prep Date.....: 03/14/03 **Analysis Date..:** 03/26/03
Prep Batch #...: 3073349 **Analysis Time..:** 18:48
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**47.6**	**38.8**	**ug/L**	**82**		**SW846 8270C**
	ND	**47.6**	**34.6**	**ug/L**	**73**	**11**	**SW846 8270C**
Chrysene	**ND**	**47.6**	**45.9**	**ug/L**	**96**		**SW846 8270C**
	ND	**47.6**	**41.3**	**ug/L**	**87**	**11**	**SW846 8270C**
Fluorene	**45**	**47.6**	**91.9**	**ug/L**	**98**		**SW846 8270C**
	45	**47.6**	**88.4**	**ug/L**	**91**	**3.8**	**SW846 8270C**
Indene	**33**	**47.6**	**62.6**	**ug/L**	**62**		**SW846 8270C**
	33	**47.6**	**66.7**	**ug/L**	**71**	**6.3**	**SW846 8270C**
2-Methylnaphthalene	**140**	**47.6**	**182**	**ug/L**	**98**		**SW846 8270C**
	140	**47.6**	**181**	**ug/L**	**96**	**0.55**	**SW846 8270C**
Naphthalene	**720**	**47.6**	**818**	**ug/L**	**216 a**		**SW846 8270C**
	720	**47.6**	**768**	**ug/L**	**110**	**6.3**	**SW846 8270C**
Quinoline	**ND**	**47.6**	**38.5**	**ug/L**	**81**		**SW846 8270C**
	ND	**47.6**	**37.0**	**ug/L**	**78**	**4.0**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	104	(30 - 160)
	76	(30 - 160)
Fluorene d-10	62	(36 - 127)
	61	(36 - 127)
Naphthalene-d8	67	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

STL Denver
4955 Yarrow Street
Arvada, CO 80002

SB 3/4/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0700) DEN (0900)

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: Scott Anderson	Date: 3-10-03	Chain of Custody Number: 017818
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Lab Number:	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name and Location (State): SAME	Carrier/Waybill Number: FED EX 806824123 0		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	#	PCB PAH	Special Instructions/ Conditions of Receipt
W420-031003 CS#004	3-10-03	1:30		X			X						2	X	
W420D-031003	3-10-03	1:30		X			X						2	X	
W420MS-031003	3-10-03	1:30		X			X						2	X	
W420MSD-031003	3-10-03	1:45		X			X						2	X	
W420FB-031003	3-10-03	1:45		X			X						2	X	
W420FBD-031003	3-10-03	1:45		X			X						2	X	
W421-031003 CS#0001	3-10-03	1:50		X			X						2	X	

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: MJH	3-10-03	1400	1. Received By:	3/10/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3C110158 (A)

July 2, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of five aqueous samples for part per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on March 10, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3C110158.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W420-031003
W420D-031003
W420FB-031003
W420FBD-031003
W421-031003

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.2-4.6°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3073349. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses with the exception for those samples that required a dilution (W420-031003 and W420D-031003). The dilutions required for these samples precluded the quantitation of surrogates; therefore, no action was required.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample W420-031003. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for naphthalene was 216% for the MS sample. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Naphthalene	216/110	6.3	30-150/0-30

No action was taken since the concentration of naphthalene in the native sample was greater than 10x the spike amount.

Field Duplicate Results

Samples W420-031003/W420D-031003 and W420FB-031003/W420FBD-031003 were submitted as the field duplicate samples with this data set. The RPD calculations for these samples were within the acceptable range for all detected analytes.

Quantitation Limits and Sample Results

Some of the samples were analyzed using a dilution. W420-031003 and W420D-031003 were diluted by a factor of 10 for the compound 2,3 Dihydroindene and by a factor of 40 for Napthalene. Sample W421-031003 was diluted by a factor of 5 for the compounds Fluoranthene, Phenanthrene, and Pyrene. All reporting limits were adjusted accordingly.

All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

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ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3C110160

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

April 10, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

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Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3C110160

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Seven samples were received under chain of custody on March 11, 2003. The samples were received in good condition temperatures of 2.2°C, 3.6°C, 4.6°C, 2.7°C, 2.3°C and 2.4°C.

GC/MS Semivolatiles, SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2002 Quality Assurance Project Plan (QAPP) for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Sample D3C110160-005 demonstrated a recovery of the surrogate chrysene-d12 that was below control limits. Sample D3C110160-006 demonstrated recoveries of the surrogates chrysene-d12 and fluorene that were below control limits. There was insufficient sample volume available for either sample for re-extraction.

The LCS associated with batch 3073163 demonstrated a recovery for quinoline that was below control limits. Historical data shows that this compound typically has poor recoveries. There was insufficient sample volume available for re-extraction.

The MS/MSD performed on sample D3C110160-001 demonstrated recoveries that were below control limits for benzo(e)pyrene. The MS demonstrated an additional recovery that was below control limits for chrysene and the surrogate chrysene-d12. The relative percent difference was above control limits for benzo(e)pyrene and quinoline.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 95.4% completeness.

DATA COMPLETENESS CALCULATION		
LOT:	D3C110160	
ANALYSIS:	PAHs by SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	6
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	5
MS Surrogates	3	2
MSD	7	6
MSD Surrogates	3	3
MS/MSD RPD	7	5
Sample/Dup. RPD	31	31
Sample Surrogates	21	18
Internal STD Area	33	33
TOTAL	**218**	**208**
% Completeness		**95.4%**

*A MS/MSD was performed on sample D3C110160-001.

Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD Calculation Lot D3C110160					
Sample: GAC-SLP4T-031003		DUP: GAC-SLP4TD-031003			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3C110160

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SLP6-031003 03/10/03 12:45 006				
Acenaphthene	59	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	10	4.8	ng/L	SW846 8270C SIM
Acridine	6.0 J	6.2	ng/L	SW846 8270C SIM
2,3-Dihydroindene	43	5.0	ng/L	SW846 8270C SIM
Fluorene	5.5	4.1	ng/L	SW846 8270C SIM
W48-031003 03/10/03 13:45 007				
Acenaphthene	68	5.7	ng/L	SW846 8270C SIM
Acridine	13	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	5.2	5.2	ng/L	SW846 8270C SIM
2,3-Dihydroindene	7.3	5.0	ng/L	SW846 8270C SIM
Indene	11	4.7	ng/L	SW846 8270C SIM
Pyrene	3.1 J	4.2	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3C110160

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3C110160

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3C110160

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FJXCQ	001	GAC-SLP4T-031003	03/10/03	11:00
FJXCV	002	GAC-SLP4TD-031003	03/10/03	11:15
FJXCW	003	GAC-SLP4TFB-031003	03/10/03	12:00
FJXCX	004	GAC-SLP4TFBD-031003	03/10/03	12:15
FJXC2	005	GAC-SLP10T-031003	03/10/03	12:30
FJXC3	006	SLP6-031003	03/10/03	12:45
FJXC6	007	W48-031003	03/10/03	13:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-001	**Work Order #...:** FJXCQ1AA	**Matrix.....:** WG	
Date Sampled...: 03/10/03	**Date Received..:** 03/11/03		
Prep Date.....: 03/15/03	**Analysis Date..:** 04/07/03		
Prep Batch #...: 3073163	**Analysis Time..:** 17:06		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(30 - 118)
Fluorene d-10	58	(41 - 162)
Naphthalene-d8	65	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TD-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-002 Work Order #...: FJXCV1AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 19:00
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	53	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFB-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-003 **Work Order #...:** FJXCW1AA **Matrix.....:** WG
Date Sampled...: 03/10/03 **Date Received..:** 03/11/03
Prep Date.....: 03/15/03 **Analysis Date..:** 04/07/03
Prep Batch #...: 3073163 **Analysis Time..:** 19:38
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(30 - 118)
Fluorene d-10	44	(41 - 162)
Naphthalene-d8	59	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFBD-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-004	**Work Order #...:** FJXCX1AA	**Matrix.....:** WG	
Date Sampled...: 03/10/03	**Date Received..:** 03/11/03		
Prep Date.....: 03/15/03	**Analysis Date..:** 04/07/03		
Prep Batch #...: 3073163	**Analysis Time..:** 20:16		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	57	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	56	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-005 **Work Order #...:** FJXC21AA **Matrix.....:** WG
Date Sampled...: 03/10/03 **Date Received..:** 03/11/03
Prep Date.....: 03/15/03 **Analysis Date..:** 04/07/03
Prep Batch #...: 3073163 **Analysis Time..:** 20:54
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	43	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP6-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-006 Work Order #...: FJXC31AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 21:32
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**59**	**5.7**	**ng/L**
Acenaphthylene	**10**	**4.8**	**ng/L**
Acridine	**6.0 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**43**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	**5.5**	**4.1**	**ng/L**
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17 *	(30 - 118)
Fluorene d-10	37 *	(41 - 162)
Naphthalene-d8	43	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W48-031003

GC/MS Semivolatiles

Lot-Sample #...:	D3C110160-007	**Work Order #...:**	FJXC61AA	**Matrix.....:**	WG
Date Sampled...:	03/10/03	**Date Received..:**	03/11/03		
Prep Date.....:	03/15/03	**Analysis Date..:**	04/07/03		
Prep Batch #...:	3073163	**Analysis Time..:**	22:09		
Dilution Factor:	1				
		Method.....:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**68**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**13**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**5.2**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**7.3**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**11**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**3.1 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	33	(30 - 118)
Fluorene d-10	77	(41 - 162)
Naphthalene-d8	45	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D3C110160

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3073163	3073053
002	WG	SW846 8270C SIM		3073163	3073053
003	WG	SW846 8270C SIM		3073163	3073053
004	WG	SW846 8270C SIM		3073163	3073053
005	WG	SW846 8270C SIM		3073163	3073053
006	WG	SW846 8270C SIM		3073163	3073053
007	WG	SW846 8270C SIM		3073163	3073053

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 **Work Order #...:** FJ5V71AA **Matrix.....:** WATER
MB Lot-Sample #: D3C140000-163

Prep Date.....: 03/15/03 **Analysis Time..:** 15:50
Analysis Date..: 04/07/03 **Prep Batch #...:** 3073163
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	57	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 **Work Order #...:** FJ5V71AC **Matrix.....:** WATER
LCS Lot-Sample#: D3C140000-163
Prep Date.....: 03/15/03 **Analysis Date..:** 04/07/03
Prep Batch #...: 3073163 **Analysis Time..:** 16:28
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**31**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**49**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**62**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**65**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**67**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**76**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**29 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	53	(41 - 162)
Naphthalene-d8	74	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 **Work Order #...:** FJ5V71AC **Matrix.....:** WATER
LCS Lot-Sample#: D3C140000-163
Prep Date.....: 03/15/03 **Analysis Date..:** 04/07/03
Prep Batch #...: 3073163 **Analysis Time..:** 16:28
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**3.10**	**ng/L**	**31**	**SW846 8270C S**
Chrysene	**10.0**	**4.90**	**ng/L**	**49**	**SW846 8270C S**
Fluorene	**10.0**	**6.24**	**ng/L**	**62**	**SW846 8270C S**
Indene	**10.0**	**6.53**	**ng/L**	**65**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**6.74**	**ng/L**	**67**	**SW846 8270C S**
Naphthalene	**10.0**	**7.63**	**ng/L**	**76**	**SW846 8270C S**
Quinoline	**10.0**	**a**	**ng/L**	**29**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	53	(41 - 162)
Naphthalene-d8	74	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 **Work Order #...:** FJXCQ1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3C110160-001 FJXCQ1AD-MSD
Date Sampled...: 03/10/03 **Date Received..:** 03/11/03
Prep Date.....: 03/15/03 **Analysis Date..:** 04/07/03
Prep Batch #...: 3073163 **Analysis Time..:** 17:44
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	15 a,p	**(30 - 150)**	**200**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**21 a**	**(30 - 132)**			**SW846 8270C SIM**
	34	**(30 - 132)**	**40**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**47**	**(30 - 132)**			**SW846 8270C SIM**
	55	**(30 - 132)**	**8.3**	**(0-50)**	**SW846 8270C SIM**
Indene	**50**	**(30 - 150)**			**SW846 8270C SIM**
	57	**(30 - 150)**	**5.2**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**54**	**(30 - 150)**			**SW846 8270C SIM**
	64	**(30 - 150)**	**8.6**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**63**	**(30 - 150)**			**SW846 8270C SIM**
	76	**(30 - 150)**	**12**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**39**	**(30 - 150)**			**SW846 8270C SIM**
	73 p	**(30 - 150)**	**53**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
	39	(30 - 118)
Fluorene d-10	42	(41 - 162)
	47	(41 - 162)
Naphthalene-d8	52	(30 - 108)
	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

* Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 **Work Order #...:** FJXCQ1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3C110160-001 FJXCQ1AD-MSD
Date Sampled...: 03/10/03 **Date Received..:** 03/11/03
Prep Date.....: 03/15/03 **Analysis Date..:** 04/07/03
Prep Batch #...: 3073163 **Analysis Time..:** 17:44
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**10.7**	**0.0**	**ng/L**	**0.0 a**		**SW846 8270C SIM**
	ND	**9.89**	**1.52**	**ng/L**	**15 a,p**	**200**	**SW846 8270C SIM**
Chrysene	**ND**	**10.7**		**ng/L**	**21 a**		**SW846 8270C SIM**
	ND	**9.89**	**3.33**	**ng/L**	**34**	**40**	**SW846 8270C SIM**
Fluorene	**ND**	**10.7**	**5.04**	**ng/L**	**47**		**SW846 8270C SIM**
	ND	**9.89**	**5.47**	**ng/L**	**55**	**8.3**	**SW846 8270C SIM**
Indene	**ND**	**10.7**	**5.38**	**ng/L**	**50**		**SW846 8270C SIM**
	ND	**9.89**	**5.67**	**ng/L**	**57**	**5.2**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**10.7**	**5.81**	**ng/L**	**54**		**SW846 8270C SIM**
	ND	**9.89**	**6.33**	**ng/L**	**64**	**8.6**	**SW846 8270C SIM**
Naphthalene	**ND**	**10.7**	**6.72**	**ng/L**	**63**		**SW846 8270C SIM**
	ND	**9.89**	**7.55**	**ng/L**	**76**	**12**	**SW846 8270C SIM**
Quinoline	**ND**	**10.7**	**4.18**	**ng/L**	**39**		**SW846 8270C SIM**
	ND	**9.89**	**7.23**	**ng/L**	**73 p**	**53**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
	39	(30 - 118)
Fluorene d-10	42	(41 - 162)
	47	(41 - 162)
Naphthalene-d8	52	(30 - 108)
	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

* Surrogate recovery is outside stated control limits.

Chain of Custody Record

3/11/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 3-10-03	Chain of Custody Number: 150703
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2570 (952) 924-2570	Lab Number:	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name and Location (State): SAME	Carrier/Waybill Number: FED EX 806824123 0		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): PPL PAHs	Special Instructions/ Conditions of Receipt
EA 0005 GAC-SLP4T-031003	3-10-03	11:00		X			X						6	X	PPL 5
GAC-SLP4TD-031003	3-10-03	11:15		X			X						6	X	PPL 5
EA 0015 GAC-SLP4TMS-031003	3-10-03	11:30		X			X						6	X	PPL 5
GAC-SLP4TMSD-031003	3-10-03	11:45		X			X						6	X	PPL 5
EA 0007 GAC-SLP4TFB-031003	3-10-03	12:00		X			X						6	X	PPL 5
GAC-SLP4TFBD-031003	3-10-03	12:15		X			X						6	X	PPL 5
EA 0012 GAC-SLP10T-031003	3-10-03	12:30		X			X						6	X	PPL 5
SLP6-031003	3-10-03	12:45		X			X						6	X	PPL 5

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	3-10-03	1400	1. Received By: [signature]	3/11/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT SERVICES — **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	3/10/03	150740
Address 3752 Wooddale Ave	**Telephone Number (Area Code)/Fax Number** 952-924-2557	**Lab Number**	**Page** 1 of 1
City St. Louis Park / **State** MN / **Zip Code** 55416	**Site Contact** Bill Gregg	**Lab Contact** Brian Stringer	
Project Name and Location (State) Reilly	**Carrier/Waybill Number**		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH-PPT-S	Special Instructions/ Conditions of Receipt
W48-031003 SEE COC 01	3/10/03	1345		X			6						X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Chris Bochm	3/10/03	1400	1. Received By: [signature]	3/11/03	0630
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample, PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3C110160 (B)

July 1, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of seven aqueous samples for parts per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on March 10, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3C110160.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

GAC-SLP4T-031003
GAC-SLP4TD-031003
GAC-SLP4TFB-031003
GAC-SLP4TFBD-031003
GAC-SLP10T-031003
SLP6-031003
W48-031003

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results

- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.2-4.6°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3073163. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses except for samples GAC-SLP10T-031003 and SLP6-031003. The recoveries for chrysene-d12 were at 25% and 17% respectively. SLP6-031003 had a recovery of 37% for fluorene-d10. The QAPP limits for these two compounds are 30% and 41%.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses except for quinoline. This compound had a 29% recovery. The QAPP limits are 30%.

MS/MSD Results

MS/MSD analyses were performed on sample GAC-SLP4T-031003. The following table summarizes the percent recoveries and/or the relative percent difference (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for benzo(e)pyrene was 0% for the MS sample and 15% for the MSD. The RPD for benzo(e)pyrene was 200. Chrysene and quinoline had percent recoveries outside the QC limits and the RPD for quinoline was 53 with a limit of 50. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/(RPD QC Limits)
Benzo(e)pyrene	0/15	200	30-150/(0-50)
Chrysene	21/ok	ok	30-132/(0-50)
Quinoline	ok/73	53	30-150/(0-50)

Field Duplicate Results

Sample GAC-SLP4T-031003 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for all detected analytes.

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected.

There were three SQLs that exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

C

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E060273

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

May 23, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

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- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **QC Sample Results**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3E060273

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Four samples were received under chain of custody on May 6, 2003. The samples were received in good condition at a temperature of 2.7°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The MS/MSD was performed on a sample from another client and/or lot and was in control.

No anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 100% completeness.

DATA COMPLETENESS CALCULATION		
LOT:	D3E060273	
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	NA	NA
MS	NA	NA
MS Surrogates	NA	NA
MSD	NA	NA
MSD Surrogates	NA	NA
MS/MSD RPD	NA	NA
Sample/Dup. RPD	NA	NA
Sample Surrogates	12	12
Internal STD Area	18	18
TOTAL	**102**	**102**
% Completeness		**100%**

*A MS/MSD, field blank, field blank duplicate, or sample duplicate were not received.

EXECUTIVE SUMMARY - Detection Highlights

D3E060273

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
P307-050503 05/05/03 13:30 001				
Acenaphthene	7.1 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	3.8 J	10	ug/L	SW846 8270C
Carbazole	3.0 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	18	10	ug/L	SW846 8270C
Fluorene	1.8 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	8.4 J	10	ug/L	SW846 8270C
P309-050503 05/05/03 15:15 003				
Acenaphthene	39	10	ug/L	SW846 8270C
Carbazole	15	10	ug/L	SW846 8270C
2,3-Dihydroindene	23	10	ug/L	SW846 8270C
Fluorene	1.7 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	7.7 J	10	ug/L	SW846 8270C
Naphthalene	4.2 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3E060273

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E060273

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E060273

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FM77Q	001	P307-050503	05/05/03	13:30
FM77R	002	P308-050503	05/05/03	14:30
FM77T	003	P309-050503	05/05/03	15:15
FM77V	004	P112-050503	05/05/03	16:15

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: P307-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060273-001 Work Order #...: FM77Q1AA Matrix.....: WG
Date Sampled...: 05/05/03 Date Received..: 05/06/03
Prep Date.....: 05/12/03 Analysis Date..: 05/15/03
Prep Batch #...: 3132309 Analysis Time..: 16:17
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**7.1 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**3.8 J**	**10**	**ug/L**
Biphenyl	ND	10	ug/L
Carbazole	**3.0 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**18**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**1.8 J**	**10**	**ug/L**
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**8.4 J**	**10**	**ug/L**
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	75	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	58	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: P308-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060273-002 **Work Order #...:** FM77R1AA **Matrix.....:** WG
Date Sampled...: 05/05/03 **Date Received..:** 05/06/03
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 16:56
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	65	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: P309-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060273-003	**Work Order #...:** FM77T1AA	**Matrix.....:** WG	
Date Sampled...: 05/05/03	**Date Received..:** 05/06/03		
Prep Date.....: 05/12/03	**Analysis Date..:** 05/15/03		
Prep Batch #...: 3132309	**Analysis Time..:** 17:34		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**39**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	**15**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**23**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**1.7 J**	**10**	**ug/L**
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**7.7 J**	**10**	**ug/L**
Naphthalene	**4.2 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	58	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: P112-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060273-004	**Work Order #...:** FM77V1AA	**Matrix.....:** WG	
Date Sampled...: 05/05/03	**Date Received..:** 05/06/03		
Prep Date.....: 05/12/03	**Analysis Date..:** 05/15/03		
Prep Batch #...: 3132309	**Analysis Time..:** 18:13		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(30 - 160)
Fluorene d-10	55	(36 - 127)
Naphthalene-d8	57	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3E060273

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3132309	3132120
002	WG	SW846 8270C		3132309	3132120
003	WG	SW846 8270C		3132309	3132120
004	WG	SW846 8270C		3132309	3132120

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060273 **Work Order #...:** FNJR11AA **Matrix.....:** WATER
MB Lot-Sample #: D3E120000-309

Prep Date.....: 05/12/03 **Analysis Time..:** 13:42
Analysis Date..: 05/15/03 **Prep Batch #...:** 3132309
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	78	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060273 **Work Order #...:** FNJR11AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E120000-309
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 14:59
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**80**	**(30 - 150)**	**SW846 8270C**
Chrysene	**77**	**(43 - 124)**	**SW846 8270C**
Fluorene	**78**	**(51 - 120)**	**SW846 8270C**
Indene	**61**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**62**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**64**	**(43 - 128)**	**SW846 8270C**
Quinoline	**66**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	68	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060273 **Work Order #...:** FNJR11AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E120000-309
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 14:59
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**40.2**	**ug/L**	**80**	**SW846 8270C**
Chrysene	**50.0**	**38.6**	**ug/L**	**77**	**SW846 8270C**
Fluorene	**50.0**	**39.0**	**ug/L**	**78**	**SW846 8270C**
Indene	**50.0**	**30.5**	**ug/L**	**61**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**30.8**	**ug/L**	**62**	**SW846 8270C**
Naphthalene	**50.0**	**31.9**	**ug/L**	**64**	**SW846 8270C**
Quinoline	**50.0**	**32.8**	**ug/L**	**66**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	68	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060273 **Work Order #...:** FM7741AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E060276-001 FM7741AD-MSD
Date Sampled...: 05/05/03 **Date Received..:** 05/06/03
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 19:30
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**72**	**(30 - 150)**			**SW846 8270C**
	72	**(30 - 150)**	**0.57**	**(0-30)**	**SW846 8270C**
Chrysene	**72**	**(43 - 124)**			**SW846 8270C**
	72	**(43 - 124)**	**1.3**	**(0-30)**	**SW846 8270C**
Fluorene	**71**	**(51 - 120)**			**SW846 8270C**
	67	**(51 - 120)**	**4.0**	**(0-30)**	**SW846 8270C**
Indene	**66**	**(49 - 108)**			**SW846 8270C**
	59	**(49 - 108)**	**4.5**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**61**	**(47 - 138)**			**SW846 8270C**
	59	**(47 - 138)**	**2.6**	**(0-30)**	**SW846 8270C**
Naphthalene	**88**	**(43 - 128)**			**SW846 8270C**
	53	**(43 - 128)**	**3.2**	**(0-30)**	**SW846 8270C**
Quinoline	**70**	**(40 - 126)**			**SW846 8270C**
	64	**(40 - 126)**	**8.7**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
	68	(30 - 160)
Fluorene d-10	62	(36 - 127)
	57	(36 - 127)
Naphthalene-d8	66	(37 - 107)
	63	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060273 **Work Order #...:** FM7741AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E060276-001 FM7741AD-MSD
Date Sampled...: 05/05/03 **Date Received..:** 05/06/03
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 19:30
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**51.0**	**36.6**	**ug/L**	**72**		**SW846 8270C**
	ND	**50.9**	**36.4**	**ug/L**	**72**	**0.57**	**SW846 8270C**
Chrysene	**ND**	**51.0**	**36.9**	**ug/L**	**72**		**SW846 8270C**
	ND	**50.9**	**36.4**	**ug/L**	**72**	**1.3**	**SW846 8270C**
Fluorene	**8.4**	**51.0**	**44.5**	**ug/L**	**71**		**SW846 8270C**
	8.4	**50.9**	**42.8**	**ug/L**	**67**	**4.0**	**SW846 8270C**
Indene	**48**	**51.0**	**81.0**	**ug/L**	**66**		**SW846 8270C**
	48	**50.9**	**77.5**	**ug/L**	**59**	**4.5**	**SW846 8270C**
2-Methylnaphthalene	**14**	**51.0**	**45.1**	**ug/L**	**61**		**SW846 8270C**
	14	**50.9**	**44.0**	**ug/L**	**59**	**2.6**	**SW846 8270C**
Naphthalene	**540**	**51.0**	**584**	**ug/L**	**88**		**SW846 8270C**
	540	**50.9**	**566**	**ug/L**	**53**	**3.2**	**SW846 8270C**
Quinoline	**ND**	**51.0**	**35.5**	**ug/L**	**70**		**SW846 8270C**
	ND	**50.9**	**32.5**	**ug/L**	**64**	**8.7**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
	68	(30 - 160)
Fluorene d-10	62	(36 - 127)
	57	(36 - 127)
Naphthalene-d8	66	(37 - 107)
	63	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

[redacted]

Chain of Custody Record

2.5° on 5/6th

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 5/5/03	Chain of Custody Number: 150745
Address: 3753 Wooddale	Telephone Number (Area Code)/Fax Number: 952-924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Bill Gregg	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	#	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB	Special Instructions/ Conditions of Receipt
P307-050503	5/5/03	1330		X			2	X						X	
P308-050503		1430													
P309-050503		1515													
P112-050503		1615													

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: A. J. Faran	5/5/03	1700	1. Received By: [signature]	5/6/03	0915
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E060273 (C)

July 1, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of four aqueous samples for parts per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on May 5, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E060273.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

P307-050503
P308-050503
P309-050503
P112-050503

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperature upon receipt at the laboratory was 2.7°C. The cooler temperature was within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3132309. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on a sample W439-050503, which was from a different data package (D3E060276). All percent recoveries and relative percent differences (RPDs) were within the acceptable range.

Field Duplicate Results

No duplicate samples were submitted with this data set.

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected. All laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

D

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E060276

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

May 23, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **QC Sample Results**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3E060276

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

One sample, one sample duplicate, one field blank, and one field blank duplicate were received under chain of custody on May 6, 2003. The samples were received in good condition at a temperature of 3.5°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3E050276-001 and 002 were analyzed at a 10x dilution for naphthalene, due to high concentrations of the target compound. As a result of the required dilutions, the surrogate recoveries were not calculated because the sample amount was greater than four times the spike amount. It is the laboratory's policy to consider all surrogates in the analyses with dilution factors of four or greater to be diluted out. Naphthalene is also reported from the 1x dilution of sample 001, because the MS/MSD was performed on this sample and the result is required to evaluate spike recoveries.

The MS/MSD performed on sample D3E060276-001 was in control.

No anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 100% completeness.

DATA COMPLETENESS CALCULATION		
LOT	D3E060276	
ANALYSIS	PAHs by SW846-8270C	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	7
MS Surrogates	3	3
MSD	7	7
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	12	12
Internal STD Area	24	24
TOTAL	**200**	**200**
% Completeness	**100.00%**	

*A MS/MSD was performed on sample W439-050503

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3E060276					
Sample: W439-050503		DUP: W439D-050503			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	58	Acenaphthene	61	5.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	3.1	2,3-Benzofuran	3.3	6.2	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	37	Benzo(b)thiophene	38	2.7	
Biphenyl	6.5	Biphenyl	6.7	3.0	
Carbazole	14	Carbazole	16	13.3	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	11	Dibenzofuran	11	0.0	
Dibenzothiophene	3.2	Dibenzothiophene	3.5	9.0	
2,3-Dihydroindene	160	2,3-Dihydroindene	160	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	8.4	Fluorene	9.1	8.0	
Indene	48	Indene	48	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	14	2-Methylnaphthalene	14	0.0	
1-Methylnaphthalene	61	1-Methylnaphthalene	62	1.6	
Naphthalene	460	Naphthalene	480	4.3	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	7.5	Phenanthrene	8.4	11.3	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E060276

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W439-050503 05/05/03 12:00 001				
Acenaphthene	58	10	ug/L	SW846 8270C
2,3-Benzofuran	3.1 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	37	10	ug/L	SW846 8270C
Biphenyl	6.5 J	10	ug/L	SW846 8270C
Carbazole	14	10	ug/L	SW846 8270C
Dibenzofuran	11	10	ug/L	SW846 8270C
Dibenzothiophene	3.2 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	160	10	ug/L	SW846 8270C
Fluorene	8.4 J	10	ug/L	SW846 8270C
Indene	48	10	ug/L	SW846 8270C
2-Methylnaphthalene	14	10	ug/L	SW846 8270C
1-Methylnaphthalene	61	10	ug/L	SW846 8270C
Naphthalene	540 E	10	ug/L	SW846 8270C
Naphthalene	460	100	ug/L	SW846 8270C
Phenanthrene	7.5 J	10	ug/L	SW846 8270C
W439D-050503 05/05/03 12:10 002				
Acenaphthene	61	10	ug/L	SW846 8270C
2,3-Benzofuran	3.3 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	38	10	ug/L	SW846 8270C
Biphenyl	6.7 J	10	ug/L	SW846 8270C
Carbazole	16	10	ug/L	SW846 8270C
Dibenzofuran	11	10	ug/L	SW846 8270C
Dibenzothiophene	3.5 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	160	10	ug/L	SW846 8270C
Fluorene	9.1 J	10	ug/L	SW846 8270C
Indene	48	10	ug/L	SW846 8270C
2-Methylnaphthalene	14	10	ug/L	SW846 8270C
1-Methylnaphthalene	62	10	ug/L	SW846 8270C
Naphthalene	480	100	ug/L	SW846 8270C
Phenanthrene	8.4 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3E060276

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E060276

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E060276

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FM774	001	W439-050503	05/05/03	12:00
FM776	002	W439D-050503	05/05/03	12:10
FM777	003	W439FB-050503	05/05/03	12:30
FM778	004	W439FBD-050503	05/05/03	12:40

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W439-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060276-001	Work Order #...: FM7741AA	Matrix.....: WG	
Date Sampled...: 05/05/03	Date Received..: 05/06/03		
Prep Date.....: 05/12/03	Analysis Date..: 05/15/03		
Prep Batch #...: 3132309	Analysis Time..: 18:52		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**58**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**3.1 J**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**37**	**10**	**ug/L**
Biphenyl	**6.5 J**	**10**	**ug/L**
Carbazole	**14**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**11**	**10**	**ug/L**
Dibenzothiophene	**3.2 J**	**10**	**ug/L**
2,3-Dihydroindene	**160**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**8.4 J**	**10**	**ug/L**
Indene	**48**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**14**	**10**	**ug/L**
1-Methylnaphthalene	**61**	**10**	**ug/L**
Naphthalene	**540 E**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**7.5 J**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	66	(30 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

CITY OF ST. LOUIS PARK

Client Sample ID: W439-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060276-001	**Work Order #...:** FM7742AA		**Matrix.....:** WG
Date Sampled...: 05/05/03	**Date Received..:** 05/06/03		
Prep Date.....: 05/12/03	**Analysis Date..:** 05/16/03		
Prep Batch #...: 3132309	**Analysis Time..:** 10:15		
Dilution Factor: 10			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	**460**	**100**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W439D-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060276-002	**Work Order #...:** FM7761AA	**Matrix.....:** WG	
Date Sampled...: 05/05/03	**Date Received..:** 05/06/03		
Prep Date.....: 05/12/03	**Analysis Date..:** 05/15/03		
Prep Batch #...: 3132309	**Analysis Time..:** 20:46		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**61**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**3.3 J**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**38**	**10**	**ug/L**
Biphenyl	**6.7 J**	**10**	**ug/L**
Carbazole	**16**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**11**	**10**	**ug/L**
Dibenzothiophene	**3.5 J**	**10**	**ug/L**
2,3-Dihydroindene	**160**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**9.1 J**	**10**	**ug/L**
Indene	**48**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**14**	**10**	**ug/L**
1-Methylnaphthalene	**62**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**8.4 J**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	88	(30 - 160)
Fluorene d-10	65	(36 - 127)
Naphthalene-d8	68	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W439D-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060276-002	**Work Order #...:** FM7762AA	**Matrix.....:** WG	
Date Sampled...: 05/05/03	**Date Received..:** 05/06/03		
Prep Date.....: 05/12/03	**Analysis Date..:** 05/16/03		
Prep Batch #...: 3132309	**Analysis Time..:** 10:53		
Dilution Factor: 10			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	**480**	**100**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W439FB-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060276-003 Work Order #...: FM7771AA Matrix.....: WG
Date Sampled...: 05/05/03 Date Received..: 05/06/03
Prep Date.....: 05/12/03 Analysis Date..: 05/15/03
Prep Batch #...: 3132309 Analysis Time..: 21:25
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(30 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	63	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W439FBD-050503

GC/MS Semivolatiles

Lot-Sample #...: D3E060276-004 Work Order #...: FM7781AA Matrix.....: WG
Date Sampled...: 05/05/03 Date Received..: 05/06/03
Prep Date.....: 05/12/03 Analysis Date..: 05/15/03
Prep Batch #...: 3132309 Analysis Time..: 22:03
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	59	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3E060276

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3132309	3132120
002	WG	SW846 8270C		3132309	3132120
003	WG	SW846 8270C		3132309	3132120
004	WG	SW846 8270C		3132309	3132120

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060276 **Work Order #...:** FNJR11AA **Matrix.....:** WATER
MB Lot-Sample #: D3E120000-309

Prep Date.....: 05/12/03 **Analysis Time..:** 13:42
Analysis Date..: 05/15/03 **Prep Batch #...:** 3132309
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	78	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060276 **Work Order #...:** FNJR11AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E120000-309
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 14:59
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**80**	**(30 - 150)**	**SW846 8270C**
Chrysene	**77**	**(43 - 124)**	**SW846 8270C**
Fluorene	**78**	**(51 - 120)**	**SW846 8270C**
Indene	**61**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**62**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**64**	**(43 - 128)**	**SW846 8270C**
Quinoline	**66**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	68	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060276 **Work Order #...:** FNJR11AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E120000-309
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 14:59
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**40.2**	**ug/L**	**80**	**SW846 8270C**
Chrysene	**50.0**	**38.6**	**ug/L**	**77**	**SW846 8270C**
Fluorene	**50.0**	**39.0**	**ug/L**	**78**	**SW846 8270C**
Indene	**50.0**	**30.5**	**ug/L**	**61**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**30.8**	**ug/L**	**62**	**SW846 8270C**
Naphthalene	**50.0**	**31.9**	**ug/L**	**64**	**SW846 8270C**
Quinoline	**50.0**	**32.8**	**ug/L**	**66**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	68	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3E060276	**Work Order #...:**	FM7741AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3E060276-001		FM7741AD-MSD		
Date Sampled...:	05/05/03	**Date Received..:**	05/06/03		
Prep Date.....:	05/12/03	**Analysis Date..:**	05/15/03		
Prep Batch #...:	3132309	**Analysis Time..:**	19:30		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**72**	**(30 - 150)**			**SW846 8270C**
	72	**(30 - 150)**	**0.57**	**(0-30)**	**SW846 8270C**
Chrysene	**72**	**(43 - 124)**			**SW846 8270C**
	72	**(43 - 124)**	**1.3**	**(0-30)**	**SW846 8270C**
Fluorene	**71**	**(51 - 120)**			**SW846 8270C**
	67	**(51 - 120)**	**4.0**	**(0-30)**	**SW846 8270C**
Indene	**66**	**(49 - 108)**			**SW846 8270C**
	59	**(49 - 108)**	**4.5**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**61**	**(47 - 138)**			**SW846 8270C**
	59	**(47 - 138)**	**2.6**	**(0-30)**	**SW846 8270C**
Naphthalene	**88**	**(43 - 128)**			**SW846 8270C**
	53	**(43 - 128)**	**3.2**	**(0-30)**	**SW846 8270C**
Quinoline	**70**	**(40 - 126)**			**SW846 8270C**
	64	**(40 - 126)**	**8.7**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
	68	(30 - 160)
Fluorene d-10	62	(36 - 127)
	57	(36 - 127)
Naphthalene-d8	66	(37 - 107)
	63	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E060276 **Work Order #...:** FM7741AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E060276-001 FM7741AD-MSD
Date Sampled...: 05/05/03 **Date Received..:** 05/06/03
Prep Date.....: 05/12/03 **Analysis Date..:** 05/15/03
Prep Batch #...: 3132309 **Analysis Time..:** 19:30
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**51.0**	**36.6**	**ug/L**	**72**		**SW846 8270C**
	ND	**50.9**	**36.4**	**ug/L**	**72**	**0.57**	**SW846 8270C**
Chrysene	**ND**	**51.0**	**36.9**	**ug/L**	**72**		**SW846 8270C**
	ND	**50.9**	**36.4**	**ug/L**	**72**	**1.3**	**SW846 8270C**
Fluorene	**8.4**	**51.0**	**44.5**	**ug/L**	**71**		**SW846 8270C**
	8.4	**50.9**	**42.8**	**ug/L**	**67**	**4.0**	**SW846 8270C**
Indene	**48**	**51.0**	**81.0**	**ug/L**	**66**		**SW846 8270C**
	48	**50.9**	**77.5**	**ug/L**	**59**	**4.5**	**SW846 8270C**
2-Methylnaphthalene	**14**	**51.0**	**45.1**	**ug/L**	**61**		**SW846 8270C**
	14	**50.9**	**44.0**	**ug/L**	**59**	**2.6**	**SW846 8270C**
Naphthalene	**540**	**51.0**	**584**	**ug/L**	**88**		**SW846 8270C**
	540	**50.9**	**566**	**ug/L**	**53**	**3.2**	**SW846 8270C**
Quinoline	**ND**	**51.0**	**35.5**	**ug/L**	**70**		**SW846 8270C**
	ND	**50.9**	**32.5**	**ug/L**	**64**	**8.7**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
	68	(30 - 160)
Fluorene d-10	62	(36 - 127)
	57	(36 - 127)
Naphthalene-d8	66	(37 - 107)
	63	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Chain of Custody Record

3.5 as 5/16s

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-5-03	Chain of Custody Number: 150741
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2567 (952) 924-2570	Lab Number:	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name and Location (State): SAME	Carrier/Waybill Number: FED EX 806824 1226		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		PPB PAH	Special Instructions/ Conditions of Receipt
W439 -050503	5-5-03	12:00		X			X						2	X	
W439D-050503	"	12:10		X			X						3	X	
W439MS-050503	"	12:15		X			X						2	X	
W439MSD-050503	"	12:20		X			X						2	X	
W439FB -050503	"	12:30		X			X						2	X	
W439FBD-050503	5-5-03	12:40		X			X						2	X	

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: MSK	5-5-03	1400	1. Received By:	5/6/03	0915
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E060276 (D) July 1, 2003

Site: Reilly Site, St. Louis Park, MN ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of four aqueous samples for parts per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on May 5, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E060276.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W439-050503
W439D-050503
W439FB-050503
W439FBD-050503

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperature upon receipt at the laboratory was 3.5°C. The cooler temperature was within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3132309. Target analytes were not detected in the laboratory method blank. A field blank (W439FB-050503) was analyzed and no concentrations of target analytes were found.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on a sample (W439-050503). All percent recoveries and relative percent differences (RPDs) were within the acceptable range.

Field Duplicate Results

Sample W439-050503 was submitted as the field duplicate sample with this data set. A total of 14 of the 31 target analytes were detected in the duplicate samples. The precision was deemed acceptable because the RPDs for all analytes fell in the proper range (<30). A field blank and field blank duplicate sample were also analyzed for this data package. No target analytes were detected in these samples (W439FB-050503 and W439FBD-050503).

ENSR

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Samples W439-050503 and W439D-050503 were reanalyzed and diluted by 10x due to elevated concentrations of the compound naphthalene in the samples. Sample quantitation limits (SQLs) were properly increased by lab.

All other laboratory reported quantitation limits for PPB analysis were at or below the reporting limits required by the QAPP.

E

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

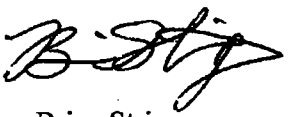
Project: Reilly Tar & Chemical Corporation

Lot #: D3E070215

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER



Brian Stringer
Project Manager

June 10, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stlinc.com

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3E070215

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

One sample, one sample duplicate, one field blank, and one field blank duplicate were received under chain of custody on May 7, 2003. The samples were received in good condition at a temperature of 2.8°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The MS/MSD performed on sample D3E070215-001 demonstrated a relative percent difference that was above control limits for quinoline. This compound is known to be a poor performer through historical data. The MS/MSD and LCS were in control and none of the samples had a detection for quinoline.

No anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 99.5% completeness.

DATA COMPLETENESS CALCULATION		
LOT: D3E070215		
ANALYSIS	PAHs by SW846-8270C	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	7
MS Surrogates	3	3
MSD	7	7
MSD Surrogates	3	3
MS/MSD RPD	7	6
Sample/Dup. RPD	31	31
Sample Surrogates	12	12
Samples and QC Internal Standard Area	24	24
TOTAL	**200**	**199**
% Completeness	**99.5%**	

*A MS/MSD was performed on sample W422-050603

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3E070215					
Sample: W422-050603		DUP: W422D-050603			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	8.6	Acenaphthene	9.1	5.6	
Acenaphthylene	ND	Acenaphthylene	ND	0	
Acridine	ND	Acridine	ND	0	
Anthracene	ND	Anthracene	ND	0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0	
Biphenyl	ND	Biphenyl	ND	0	
Carbazole	ND	Carbazole	ND	0	
Chrysene	ND	Chrysene	ND	0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0	
Dibenzofuran	ND	Dibenzofuran	ND	0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0	
Fluoranthene	ND	Fluoranthene	ND	0	
Fluorene	ND	Fluorene	ND	0	
Indene	ND	Indene	ND	0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0	
Indole	ND	Indole	ND	0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0	
Naphthalene	ND	Naphthalene	ND	0	
Perylene	ND	Perylene	ND	0	
Phenanthrene	ND	Phenanthrene	ND	0	
Pyrene	ND	Pyrene	ND	0	
Quinoline	ND	Quinoline	ND	0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E070215

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W422-050603 05/06/03 12:00 001				
Acenaphthene	8.6 J	10	ug/L	SW846 8270C
W422D-050603 05/06/03 12:10 002				
Acenaphthene	9.1 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3E070215

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E070215

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E070215

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FM9R0	001	W422-050603	05/06/03	12:00
FM9R5	002	W422D-050603	05/06/03	12:10
FM9R8	003	W422FB-050603	05/06/03	12:40
FM9TC	004	W422FBD-050603	05/06/03	12:50

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W422-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070215-001	**Work Order #...:** FM9R01AA	**Matrix.....:** WG
Date Sampled...: 05/06/03	**Date Received..:** 05/07/03	
Prep Date.....: 05/13/03	**Analysis Date..:** 06/05/03	
Prep Batch #...: 3133200	**Analysis Time..:** 17:18	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**8.6 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	85	(30 - 160)
Fluorene d-10	76	(36 - 127)
Naphthalene-d8	84	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W422D-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070215-002 Work Order #...: FM9R51AA Matrix.....: WG
Date Sampled...: 05/06/03 Date Received..: 05/07/03
Prep Date.....: 05/13/03 Analysis Date..: 06/05/03
Prep Batch #...: 3133200 Analysis Time..: 19:12
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**9.1 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	105	(30 - 160)
Fluorene d-10	84	(36 - 127)
Naphthalene-d8	92	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W422FB-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070215-003 Work Order #...: FM9R81AA Matrix.....: WG
Date Sampled...: 05/06/03 Date Received..: 05/07/03
Prep Date.....: 05/13/03 Analysis Date..: 06/05/03
Prep Batch #...: 3133200 Analysis Time..: 19:49
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	97	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	60	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W422FBD-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070215-004 **Work Order #...:** FM9TC1AA **Matrix.....:** WG
Date Sampled...: 05/06/03 **Date Received..:** 05/07/03
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 20:27
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	101	(30 - 160)
Fluorene d-10	70	(36 - 127)
Naphthalene-d8	83	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3E070215

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3133200	3133060
002	WG	SW846 8270C		3133200	3133060
003	WG	SW846 8270C		3133200	3133060
004	WG	SW846 8270C		3133200	3133060

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070215 **Work Order #...:** FNLAA1AA **Matrix.....:** WATER
MB Lot-Sample #: D3E130000-200

Prep Date.....: 05/13/03 **Analysis Time..:** 16:02
Analysis Date..: 06/05/03 **Prep Batch #...:** 3133200
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
hrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	93	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	75	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070215 **Work Order #...:** FNLAA1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E130000-200
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 16:40
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**90**	**(30 - 150)**	**SW846 8270C**
Chrysene	**85**	**(43 - 124)**	**SW846 8270C**
Fluorene	**76**	**(51 - 120)**	**SW846 8270C**
Indene	**65**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**63**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**69**	**(43 - 128)**	**SW846 8270C**
Quinoline	**80**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070215 **Work Order #...:** FNLAA1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E130000-200
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 16:40
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**44.9**	**ug/L**	**90**	**SW846 8270C**
Chrysene	**50.0**	**42.7**	**ug/L**	**85**	**SW846 8270C**
Fluorene	**50.0**	**37.9**	**ug/L**	**76**	**SW846 8270C**
Indene	**50.0**	**32.5**	**ug/L**	**65**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**31.6**	**ug/L**	**63**	**SW846 8270C**
Naphthalene	**50.0**	**34.5**	**ug/L**	**69**	**SW846 8270C**
Quinoline	**50.0**	**39.9**	**ug/L**	**80**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070215 **Work Order #...:** FM9R01AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E070215-001 FM9R01AD-MSD
Date Sampled...: 05/06/03 **Date Received..:** 05/07/03
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 17:56
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**97**	**(30 - 150)**			**SW846 8270C**
	82	**(30 - 150)**	**26**	**(0-30)**	**SW846 8270C**
Chrysene	**92**	**(43 - 124)**			**SW846 8270C**
	77	**(43 - 124)**	**28**	**(0-30)**	**SW846 8270C**
Fluorene	**79**	**(51 - 120)**			**SW846 8270C**
	80	**(51 - 120)**	**9.3**	**(0-30)**	**SW846 8270C**
Indene	**73**	**(49 - 108)**			**SW846 8270C**
	71	**(49 - 108)**	**13**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**68**	**(47 - 138)**			**SW846 8270C**
	71	**(47 - 138)**	**4.1**	**(0-30)**	**SW846 8270C**
Naphthalene	**74**	**(43 - 128)**			**SW846 8270C**
	74	**(43 - 128)**	**9.5**	**(0-30)**	**SW846 8270C**
Quinoline	**87**	**(40 - 126)**			**SW846 8270C**
	64 p	**(40 - 126)**	**40**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(30 - 160)
	71	(30 - 160)
Fluorene d-10	74	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	82	(37 - 107)
	74	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070215 **Work Order #...:** FM9R01AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E070215-001 FM9R01AD-MSD
Date Sampled...: 05/06/03 **Date Received..:** 05/07/03
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 17:56
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**53.4**	**51.5**	**ug/L**	**97**		**SW846 8270C**
	ND	**48.4**	**39.6**	**ug/L**	**82**	**26**	**SW846 8270C**
Chrysene	**ND**	**53.4**	**49.2**	**ug/L**	**92**		**SW846 8270C**
	ND	**48.4**	**37.1**	**ug/L**	**77**	**28**	**SW846 8270C**
Fluorene	**ND**	**53.4**	**42.3**	**ug/L**	**79**		**SW846 8270C**
	ND	**48.4**	**38.5**	**ug/L**	**80**	**9.3**	**SW846 8270C**
Indene	**ND**	**53.4**	**39.2**	**ug/L**	**73**		**SW846 8270C**
	ND	**48.4**	**34.4**	**ug/L**	**71**	**13**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**53.4**	**36.0**	**ug/L**	**68**		**SW846 8270C**
	ND	**48.4**	**34.6**	**ug/L**	**71**	**4.1**	**SW846 8270C**
Naphthalene	**ND**	**53.4**	**39.6**	**ug/L**	**74**		**SW846 8270C**
	ND	**48.4**	**36.0**	**ug/L**	**74**	**9.5**	**SW846 8270C**
Quinoline	**ND**	**53.4**	**46.6**	**ug/L**	**87**		**SW846 8270C**
	ND	**48.4**	**30.9**	**ug/L**	**64 p**	**40**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(30 - 160)
	71	(30 - 160)
Fluorene d-10	74	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	82	(37 - 107)
	74	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

Chain of Custody Record

3.6° 5/7/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	SCOTT ANDERSON	5-6-03	150742
	Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Lab Number	Page ____ of ____
	Site Contact: SAME	Lab Contact	
Project Name and Location (State): SAME	Carrier/Waybill Number: FED EX 806824124 1		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Other	Containers & Preservatives: Unpres	H_2SO_4	HNO_3	HCl	NaOH	Zn Ac/ NaOH	Other	Analysis (Attach list if more space is needed): PCB PAH	Special Instructions/ Conditions of Receipt
1422-050603	5-6-03	12:00		X				X						2	X	
1422D-050603		12:10		X				X						2	X	
1422MS-050603		12:20		X				X						2	X	
1422MSD-050603		12:30		X				X						2	X	
1422FB-050603		12:40		X				X						2	X	
1422FBD-050603	5-6-03	12:50		X				X						2	X	

Possible Hazard Identification: ☐ Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
Relinquished By: MBA	5-6-03	1400	1. Received By:	5/7/03	0815
Relinquished By			2. Received By		
Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E070215 (E) July 2, 2003

Site: Reilly Site, St. Louis Park, MN ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of four aqueous samples for parts per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on May 6, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E070215.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar and Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W422-050603
W422D-050603
W422FB-050603
W422FBD-050603

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperature upon receipt at the laboratory was 2.8°C. The cooler temperature was within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3133200. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample D3E070215-001. All percent recoveries and relative percent differences (RPDs) were within the acceptable range with the exception of quinoline. The RPD was 40 and fell outside the range of 0-30.

Compound	% Recovery MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Quinoline	ok/ok	40	40-126/0-30

Field Duplicate Results

Sample W422-050603 was submitted as the field duplicate sample with this data set. Only one target analyte was detected in the sample and it was at a level below the reporting limit of 10ug/l. The percent recoveries and RPDs were within range for all analytes.

ENSR

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected.

All laboratory reported quantitation limits for PPB analysis were at or below the reporting limits required by the QAPP.

F

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E070219

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

June 10, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • *www.stl-inc.com*

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

Check below when supporting documentation is present.

- **Volatile GC/MS** ☐
- **Semivolatile GC/MS** ☒
- **Volatile GC** ☐
- **Semivolatile GC** ☐
- **LC/MS or HPLC** ☐
- **Metals** ☐
- **General Chemistry** ☐
- **Subcontracted Data** ☐

CASE NARRATIVE
D3E070219

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Six samples were received under chain of custody on May 7, 2003. The samples were received in good condition at a temperature of 2.8°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The MS/MSD associated with batch 3133200 was performed on a sample from another lot and/or client and some demonstrated a relative percent difference that was above control limits.

No anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 100% completeness.

DATA COMPLETENESS CALCULATION		
LOT: D3E070219		
ANALYSIS:	PAHs by SW846-8270	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	NA	NA
MS	NA	NA
MS Surrogates	NA	NA
MSD	NA	NA
MSD Surrogates	NA	NA
MS/MSD RPD	NA	NA
Sample/Dup. RPD	NA	NA
Sample Surrogates	18	18
Samples, LCS, & MB Internal Standard Area	24	24
TOTAL	**86**	**86**
% Completeness	**100.00%**	

*A MS/MSD, field blank, field blank duplicate, or sample duplicate were not received with this lot.

EXECUTIVE SUMMARY - Detection Highlights

D3E070219

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
P312-050603 05/06/03 10:00 001				
Acenaphthene	7.5 J	10	ug/L	SW846 8270C
Carbazole	1.1 J	10	ug/L	SW846 8270C
P310-050603 05/06/03 15:10 004				
Acenaphthene	10	10	ug/L	SW846 8270C
Carbazole	5.6 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3E070219

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E070219

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E070219

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FM9VJ	001	P312-050603	05/06/03	10:00
FM9VM	002	P109-050603	05/06/03	12:00
FM9VP	003	W117-050603	05/06/03	10:20
FM9VR	004	P310-050603	05/06/03	15:10
FM9V0	005	W136-050603	05/06/03	14:20
FM9V3	006	W427-050603	05/06/03	16:20

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: P312-050603

GC/MS Semivolatiles

Lot-Sample #...:	D3E070219-001	**Work Order #...:**	FM9VJ1AA	**Matrix.....:**	WG
Date Sampled...:	05/06/03	**Date Received..:**	05/07/03		
Prep Date.....:	05/13/03	**Analysis Date..:**	06/05/03		
Prep Batch #...:	3133200	**Analysis Time..:**	21:04		
Dilution Factor:	1				
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**7.5 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	**1.1 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	83	(30 - 160)
Fluorene d-10	70	(36 - 127)
Naphthalene-d8	76	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: P109-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070219-002 **Work Order #...:** FM9VM1AA **Matrix.....:** WG
Date Sampled...: 05/06/03 **Date Received..:** 05/07/03
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 21:43
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(30 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	70	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W117-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070219-003 Work Order #...: FM9VP1AA Matrix.....: WG
Date Sampled...: 05/06/03 Date Received..: 05/07/03
Prep Date.....: 05/13/03 Analysis Date..: 06/05/03
Prep Batch #...: 3133200 Analysis Time..: 22:21
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	88	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	62	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: P310-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070219-004	**Work Order #...:** FM9VR1AA	**Matrix.....:** WG
Date Sampled...: 05/06/03	**Date Received..:** 05/07/03	
Prep Date.....: 05/13/03	**Analysis Date..:** 06/05/03	
Prep Batch #...: 3133200	**Analysis Time..:** 22:58	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**10**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	**5.6 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	56	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W136-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070219-005	**Work Order #...:** FM9V01AA	**Matrix.....:** WG	
Date Sampled...: 05/06/03	**Date Received..:** 05/07/03		
Prep Date.....: 05/13/03	**Analysis Date..:** 06/06/03		
Prep Batch #...: 3133200	**Analysis Time..:** 12:10		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	86	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	75	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W427-050603

GC/MS Semivolatiles

Lot-Sample #...: D3E070219-006	**Work Order #...:** FM9V31AA	**Matrix.....:** WG
Date Sampled...: 05/06/03	**Date Received..:** 05/07/03	
Prep Date.....: 05/13/03	**Analysis Date..:** 06/06/03	
Prep Batch #...: 3133200	**Analysis Time..:** 12:48	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	89	(30 - 160)
Fluorene d-10	65	(36 - 127)
Naphthalene-d8	72	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3E070219

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3133200	3133060
002	WG	SW846 8270C		3133200	3133060
003	WG	SW846 8270C		3133200	3133060
004	WG	SW846 8270C		3133200	3133060
005	WG	SW846 8270C		3133200	3133060
006	WG	SW846 8270C		3133200	3133060

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070219 **Work Order #...:** FNLAA1AA **Matrix.....:** WATER
MB Lot-Sample #: D3E130000-200
Prep Date.....: 05/13/03 **Analysis Time..:** 16:02
Analysis Date..: 06/05/03 **Prep Batch #...:** 3133200
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	93	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	75	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070219 **Work Order #...:** FNLAA1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E130000-200
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 16:40
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**90**	**(30 - 150)**	**SW846 8270C**
Chrysene	**85**	**(43 - 124)**	**SW846 8270C**
Fluorene	**76**	**(51 - 120)**	**SW846 8270C**
Indene	**65**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**63**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**69**	**(43 - 128)**	**SW846 8270C**
Quinoline	**80**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070219 **Work Order #...:** FNLAA1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E130000-200
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 16:40
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**44.9**	**ug/L**	**90**	**SW846 8270C**
Chrysene	**50.0**	**42.7**	**ug/L**	**85**	**SW846 8270C**
Fluorene	**50.0**	**37.9**	**ug/L**	**76**	**SW846 8270C**
Indene	**50.0**	**32.5**	**ug/L**	**65**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**31.6**	**ug/L**	**63**	**SW846 8270C**
Naphthalene	**50.0**	**34.5**	**ug/L**	**69**	**SW846 8270C**
Quinoline	**50.0**	**39.9**	**ug/L**	**80**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070219 **Work Order #...:** FM9R01AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E070215-001 FM9R01AD-MSD
Date Sampled...: 05/06/03 **Date Received..:** 05/07/03
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 17:56
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**97**	**(30 - 150)**			**SW846 8270C**
	82	**(30 - 150)**	**26**	**(0-30)**	**SW846 8270C**
Chrysene	**92**	**(43 - 124)**			**SW846 8270C**
	77	**(43 - 124)**	**28**	**(0-30)**	**SW846 8270C**
Fluorene	**79**	**(51 - 120)**			**SW846 8270C**
	80	**(51 - 120)**	**9.3**	**(0-30)**	**SW846 8270C**
Indene	**73**	**(49 - 108)**			**SW846 8270C**
	71	**(49 - 108)**	**13**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**68**	**(47 - 138)**			**SW846 8270C**
	71	**(47 - 138)**	**4.1**	**(0-30)**	**SW846 8270C**
Naphthalene	**74**	**(43 - 128)**			**SW846 8270C**
	74	**(43 - 128)**	**9.5**	**(0-30)**	**SW846 8270C**
Quinoline	**87**	**(40 - 126)**			**SW846 8270C**
	64 p	**(40 - 126)**	**40**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(30 - 160)
	71	(30 - 160)
Fluorene d-10	74	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	82	(37 - 107)
	74	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E070219 **Work Order #...:** FM9R01AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E070215-001 FM9R01AD-MSD
Date Sampled...: 05/06/03 **Date Received..:** 05/07/03
Prep Date.....: 05/13/03 **Analysis Date..:** 06/05/03
Prep Batch #...: 3133200 **Analysis Time..:** 17:56
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**53.4**	**51.5**	**ug/L**	**97**		**SW846 8270C**
	ND	**48.4**	**39.6**	**ug/L**	**82**	**26**	**SW846 8270C**
Chrysene	**ND**	**53.4**	**49.2**	**ug/L**	**92**		**SW846 8270C**
	ND	**48.4**	**37.1**	**ug/L**	**77**	**28**	**SW846 8270C**
Fluorene	**ND**	**53.4**	**42.3**	**ug/L**	**79**		**SW846 8270C**
	ND	**48.4**	**38.5**	**ug/L**	**80**	**9.3**	**SW846 8270C**
Indene	**ND**	**53.4**	**39.2**	**ug/L**	**73**		**SW846 8270C**
	ND	**48.4**	**34.4**	**ug/L**	**71**	**13**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**53.4**	**36.0**	**ug/L**	**68**		**SW846 8270C**
	ND	**48.4**	**34.6**	**ug/L**	**71**	**4.1**	**SW846 8270C**
Naphthalene	**ND**	**53.4**	**39.6**	**ug/L**	**74**		**SW846 8270C**
	ND	**48.4**	**36.0**	**ug/L**	**74**	**9.5**	**SW846 8270C**
Quinoline	**ND**	**53.4**	**46.6**	**ug/L**	**87**		**SW846 8270C**
	ND	**48.4**	**30.9**	**ug/L**	**64 p**	**40**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(30 - 160)
	71	(30 - 160)
Fluorene d-10	74	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	82	(37 - 107)
	74	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

[redacted]

Chain of Custody Record

25 5/7/03

SEVERN TRENT SERVICES — **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 5/6/03	Chain of Custody Number: 150728
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 952-924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Bill Gregg	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number: [redacted]		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB	Special Instructions/ Conditions of Receipt
P312-050603	5/6/03	1000		X			2						X	
P109-050603		1200												
W117-050603		1020												
P310-050603		1510												
W136-050603		1420												
W427-050603	↓	1620		↓			↓						↓	

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By [redacted]	5/6/03	1700	1. Received By [redacted]	5/7/03	0845
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E070219 (F)

July 2, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of six aqueous samples for parts per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on May 6, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E070219.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

P312-050603
P109-050603
W117-050603
P310-050603
W136-050603
W427-050603

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperature upon receipt at the laboratory was 2.8°C. The cooler temperature was within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3133200. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on a sample from a different data set (D3E130215). All percent recoveries and relative percent differences (RPDs) were within the acceptable range with the exception of quinoline. The RPD was 40 and fell outside the range of 0-30.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Quinoline	ok/ok	40	40-126/0-30

Field Duplicate Results

No duplicate samples were submitted with this data set.

ENSR

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected.

All laboratory reported quantitation limits for PPB analysis were at or below the reporting limits required by the QAPP.

G

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

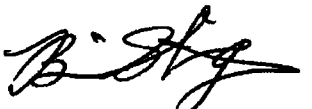
Project: Reilly Tar & Chemical Corporation

Lot #: D3E130215

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER



Brian Stringer
Project Manager

June 12, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • *www.stl-inc.com*

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3E130215

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eight samples were received under chain of custody on May 13, 2003. The samples were received in good condition at temperatures of 4.6°C and 2.9°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Sample D3E130215-002 was analyzed at a dilution for 1-methylnaphthalene due to high concentrations of target compounds. The reporting limits are adjusted accordingly.

The MS/MSD associated with batch 3136450 was performed on a sample from another lot and/or client and was in control.

No anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 100% completeness.

DATA COMPLETENESS CALCULATION		
LOT: D3E130215		
ANALYSIS: PAHs by SW846-8270C		
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	NA	NA
MS Surrogates	NA	NA
MSD	NA	NA
MSD Surrogates	NA	NA
MS/MSD RPD	NA	NA
Sample/Dup. RPD	NA	NA
Sample Surrogates	27	27
Samples and QC Internal Standard Area	33	33
TOTAL	**166**	**166**
% Completeness	**100.00%**	

*An MS/MSD or sample duplicate were not received with this lot.

EXECUTIVE SUMMARY - Detection Highlights

D3E130215

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W27-051203 05/12/03 14:00 001				
Acenaphthene	19	10	ug/L	SW846 8270C
Benzo(b)thiophene	2.8 J	10	ug/L	SW846 8270C
Biphenyl	2.9 J	10	ug/L	SW846 8270C
Carbazole	2.8 J	10	ug/L	SW846 8270C
Dibenzofuran	5.5 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	27	10	ug/L	SW846 8270C
Fluorene	7.2 J	10	ug/L	SW846 8270C
Indene	7.6 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	10	10	ug/L	SW846 8270C
Naphthalene	3.8 J	10	ug/L	SW846 8270C
W437-051203 05/12/03 12:00 002				
Acenaphthene	180	10	ug/L	SW846 8270C
Acridine	11	10	ug/L	SW846 8270C
2,3-Benzofuran	2.2 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	150	10	ug/L	SW846 8270C
Biphenyl	34	10	ug/L	SW846 8270C
Carbazole	110	10	ug/L	SW846 8270C
Dibenzofuran	53	10	ug/L	SW846 8270C
Dibenzothiophene	1.2 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	150	10	ug/L	SW846 8270C
Fluorene	52	10	ug/L	SW846 8270C
Indene	83	10	ug/L	SW846 8270C
2-Methylnaphthalene	110	10	ug/L	SW846 8270C
1-Methylnaphthalene	180	20	ug/L	SW846 8270C
W101-051203 05/12/03 11:25 003				
2,3-Dihydroindene	14	10	ug/L	SW846 8270C
W426-051203 05/12/03 10:45 004				
Acenaphthene	150	10	ug/L	SW846 8270C
Anthracene	4.3 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	5.9 J	10	ug/L	SW846 8270C
Biphenyl	25	10	ug/L	SW846 8270C
Carbazole	22	10	ug/L	SW846 8270C
Dibenzofuran	39	10	ug/L	SW846 8270C
Dibenzothiophene	4.0 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	45	10	ug/L	SW846 8270C
Fluoranthene	5.1 J	10	ug/L	SW846 8270C
Fluorene	59	10	ug/L	SW846 8270C

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3E130215

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W426-051203 05/12/03 10:45 004				
Indene	9.0 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	130	10	ug/L	SW846 8270C
Naphthalene	5.9 J	10	ug/L	SW846 8270C
Phenanthrene	68	10	ug/L	SW846 8270C
Pyrene	2.2 J	10	ug/L	SW846 8270C
W20-051203 05/12/03 14:45 005				
Naphthalene	6.4 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3E130215

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E130215

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E130215

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FNL6D	001	W27-051203	05/12/03	14:00
FNL6K	002	W437-051203	05/12/03	12:00
FNL6N	003	W101-051203	05/12/03	11:25
FNL6T	004	W426-051203	05/12/03	10:45
FNL6X	005	W20-051203	05/12/03	14:45
FNL63	006	W20FB-051203	05/12/03	14:35
FNL65	007	W20FBD-051203	05/12/03	14:40
FNL7A	008	W433-051203	05/12/03	16:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W27-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-001 Work Order #...: FNL6D1AA Matrix.....: WG
Date Sampled...: 05/12/03 Date Received..: 05/13/03
Prep Date.....: 05/17/03 Analysis Date..: 06/06/03
Prep Batch #...: 3136450 Analysis Time..: 13:27
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**19**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**2.8 J**	**10**	**ug/L**
Biphenyl	**2.9 J**	**10**	**ug/L**
Carbazole	**2.8 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**5.5 J**	**10**	**ug/L**
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**27**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**7.2 J**	**10**	**ug/L**
Indene	**7.6 J**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**10**	**10**	**ug/L**
Naphthalene	**3.8 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(30 - 160)
Fluorene d-10	61	(36 - 127)
Naphthalene-d8	57	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W437-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-002 Work Order #...: FNL6K1AA Matrix.....: WG
Date Sampled...: 05/12/03 Date Received..: 05/13/03
Prep Date.....: 05/17/03 Analysis Date..: 06/06/03
Prep Batch #...: 3136450 Analysis Time..: 14:05
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**180**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	**11**	**10**	**ug/L**
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**2.2 J**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**150**	**10**	**ug/L**
Biphenyl	**34**	**10**	**ug/L**
Carbazole	**110**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**53**	**10**	**ug/L**
Dibenzothiophene	**1.2 J**	**10**	**ug/L**
2,3-Dihydroindene	**150**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**52**	**10**	**ug/L**
Indene	**83**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**110**	**10**	**ug/L**
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W437-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-002	**Work Order #...:** FNL6K2AA	**Matrix.....:** WG	
Date Sampled...: 05/12/03	**Date Received..:** 05/13/03		
Prep Date.....: 05/17/03	**Analysis Date..:** 06/06/03		
Prep Batch #...: 3136450	**Analysis Time..:** 18:47		
Dilution Factor: 2			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1-Methylnaphthalene	**180**	**20**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	71	(30 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	62	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W101-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-003 Work Order #...: FNL6N1AA Matrix.....: WG
Date Sampled...: 05/12/03 Date Received..: 05/13/03
Prep Date.....: 05/17/03 Analysis Date..: 06/06/03
Prep Batch #...: 3136450 Analysis Time..: 14:44
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**14**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	53	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W426-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-004	**Work Order #...:** FNL6T1AA	**Matrix.....:** WG	
Date Sampled...: 05/12/03	**Date Received..:** 05/13/03		
Prep Date.....: 05/17/03	**Analysis Date..:** 06/06/03		
Prep Batch #...: 3136450	**Analysis Time..:** 15:24		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**150**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**4.3 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**5.9 J**	**10**	**ug/L**
Biphenyl	**25**	**10**	**ug/L**
Carbazole	**22**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**39**	**10**	**ug/L**
Dibenzothiophene	**4.0 J**	**10**	**ug/L**
2,3-Dihydroindene	**45**	**10**	**ug/L**
Fluoranthene	**5.1 J**	**10**	**ug/L**
Fluorene	**59**	**10**	**ug/L**
Indene	**9.0 J**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**130**	**10**	**ug/L**
Naphthalene	**5.9 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**68**	**10**	**ug/L**
Pyrene	**2.2 J**	**10**	**ug/L**
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	78	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	58	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W20-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-005 Work Order #...: FNL6X1AA Matrix.....: WG
Date Sampled...: 05/12/03 Date Received..: 05/13/03
Prep Date.....: 05/17/03 Analysis Date..: 06/06/03
Prep Batch #...: 3136450 Analysis Time..: 19:25
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	**6.4 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	69	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W20FB-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-006 **Work Order #...:** FNL631AA **Matrix.....:** WG
Date Sampled...: 05/12/03 **Date Received..:** 05/13/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 20:03
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	88	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	62	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W20FBD-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-007 Work Order #...: FNL651AA Matrix.....: WG
Date Sampled...: 05/12/03 Date Received..: 05/13/03
Prep Date.....: 05/17/03 Analysis Date..: 06/06/03
Prep Batch #...: 3136450 Analysis Time..: 20:41
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	90	(30 - 160)
Fluorene d-10	65	(36 - 127)
Naphthalene-d8	68	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W433-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130215-008 Work Order #...: FNL7A1AA Matrix.....: WG
Date Sampled...: 05/12/03 Date Received..: 05/13/03
Prep Date.....: 05/17/03 Analysis Date..: 06/06/03
Prep Batch #...: 3136450 Analysis Time..: 21:20
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	59	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	65	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3E130215

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3136450	3136202
002	WG	SW846 8270C		3136450	3136202
003	WG	SW846 8270C		3136450	3136202
004	WG	SW846 8270C		3136450	3136202
005	WG	SW846 8270C		3136450	3136202
006	WG	SW846 8270C		3136450	3136202
007	WG	SW846 8270C		3136450	3136202
008	WG	SW846 8270C		3136450	3136202

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130215 **Work Order #...:** FNWW61AA **Matrix.....:** WATER
MB Lot-Sample #: D3E160000-450

Prep Date.....: 05/17/03 **Analysis Time..:** 10:54
Analysis Date..: 06/06/03 **Prep Batch #...:** 3136450
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130215 **Work Order #...:** FNWW61AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E160000-450
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 11:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**89**	**(30 - 150)**	**SW846 8270C**
Chrysene	**87**	**(43 - 124)**	**SW846 8270C**
Fluorene	**81**	**(51 - 120)**	**SW846 8270C**
Indene	**66**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**64**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**68**	**(43 - 128)**	**SW846 8270C**
Quinoline	**75**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	97	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130215 **Work Order #...:** FNWW61AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E160000-450
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 11:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**44.6**	**ug/L**	**89**	**SW846 8270C**
Chrysene	**50.0**	**43.7**	**ug/L**	**87**	**SW846 8270C**
Fluorene	**50.0**	**40.4**	**ug/L**	**81**	**SW846 8270C**
Indene	**50.0**	**33.2**	**ug/L**	**66**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**32.1**	**ug/L**	**64**	**SW846 8270C**
Naphthalene	**50.0**	**33.8**	**ug/L**	**68**	**SW846 8270C**
Quinoline	**50.0**	**37.4**	**ug/L**	**75**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	97	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130215 **Work Order #...:** FNL731AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E130222-001 FNL731AD-MSD
Date Sampled...: 05/12/03 **Date Received..:** 05/13/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 22:37
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**80**	**(30 - 150)**			**SW846 8270C**
	83	**(30 - 150)**	**6.8**	**(0-30)**	**SW846 8270C**
Chrysene	**74**	**(43 - 124)**			**SW846 8270C**
	77	**(43 - 124)**	**6.1**	**(0-30)**	**SW846 8270C**
Fluorene	**76**	**(51 - 120)**			**SW846 8270C**
	81	**(51 - 120)**	**8.1**	**(0-30)**	**SW846 8270C**
Indene	**65**	**(49 - 108)**			**SW846 8270C**
	58	**(49 - 108)**	**10**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**64**	**(47 - 138)**			**SW846 8270C**
	56	**(47 - 138)**	**11**	**(0-30)**	**SW846 8270C**
Naphthalene	**68**	**(43 - 128)**			**SW846 8270C**
	60	**(43 - 128)**	**10**	**(0-30)**	**SW846 8270C**
Quinoline	**71**	**(40 - 126)**			**SW846 8270C**
	79	**(40 - 126)**	**13**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(30 - 160)
	57	(30 - 160)
Fluorene d-10	61	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	69	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130215 **Work Order #...:** FNL731AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E130222-001 FNL731AD-MSD
Date Sampled...: 05/12/03 **Date Received..:** 05/13/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 22:37
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**47.9**	**38.1**	**ug/L**	**80**		**SW846 8270C**
	ND	**48.9**	**40.8**	**ug/L**	**83**	**6.8**	**SW846 8270C**
Chrysene	**ND**	**47.9**	**35.4**	**ug/L**	**74**		**SW846 8270C**
	ND	**48.9**	**37.6**	**ug/L**	**77**	**6.1**	**SW846 8270C**
Fluorene	**ND**	**47.9**	**36.6**	**ug/L**	**76**		**SW846 8270C**
	ND	**48.9**	**39.7**	**ug/L**	**81**	**8.1**	**SW846 8270C**
Indene	**ND**	**47.9**	**31.3**	**ug/L**	**65**		**SW846 8270C**
	ND	**48.9**	**28.2**	**ug/L**	**58**	**10**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**47.9**	**30.5**	**ug/L**	**64**		**SW846 8270C**
	ND	**48.9**	**27.2**	**ug/L**	**56**	**11**	**SW846 8270C**
Naphthalene	**ND**	**47.9**	**32.4**	**ug/L**	**68**		**SW846 8270C**
	ND	**48.9**	**29.2**	**ug/L**	**60**	**10**	**SW846 8270C**
Quinoline	**ND**	**47.9**	**33.9**	**ug/L**	**71**		**SW846 8270C**
	ND	**48.9**	**38.5**	**ug/L**	**79**	**13**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(30 - 160)
	57	(30 - 160)
Fluorene d-10	61	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	69	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

[redacted]

Chain of Custody Record

4° 7.9 5/13/03

SEVERN TRENT SERVICES **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	5/12/03	150720
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
3557 Woodale Ave	952 924 2557		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416	Bill Gregg	Brian Stringer	
Project Name and Location (State)	**Carrier/Waybill Number**		
Reilly			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB	Special Instructions/ Conditions of Receipt
W27-051203	5/12/03	1400		X			2						X	W27 & W437 Are in other
W437-051203		1200												SLP cooler.
W101-051203		1125												
W426-051203		1045												
W20-051203		1445												
W20FB-051203		1435												
W20FBD-051203		1440												
W433-051203		1630												

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: A. J. Gaura	5/12/03	1700	1. Received By:	5/13/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E130215 (G)

July 2, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of eight aqueous samples for parts per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on May 12, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E130215.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W27-051203
W437-051203
W101-051203
W426-051203
W20-051203
W20FB-051203
W20FBD-051203
W433-051203

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were 4.6°C and 2.9°C. The cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3136450. In addition to the method blank, a field blank and a field blank duplicate were collected for this data set (W20FB-051203 and W420FBD-051203). Target analytes were not detected in either of the laboratory method blank or field blanks.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on a sample from a different data set (D3E130222). All percent recoveries and relative percent differences (RPDs) were within the acceptable range.

Field Duplicate Results

No duplicate samples were submitted for this data set.

Quantitation Limits and Sample Results

All samples were analyzed undiluted with the exception of sample W437-051203. The sample was diluted at 2x due to elevated concentrations of 1-Methylnaphthalene in the sample. Sample quantitation limits (SQLs), were properly adjusted by the lab.

All laboratory reported quantitation limits for PPB analysis were at or below the reporting limits required by the QAPP.

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SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E130222

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

June 12, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • *www.stl-inc.com*

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3E130222

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Two samples were received under chain of custody on May 13, 2003. The samples were received in good condition at temperatures of 4.6°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The MS/MSD performed on sample D3E130222-001 was in control.

No anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 100% completeness.

DATA COMPLETENESS CALCULATION		
LOT: D3E130222		
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	NA	NA
MS	7	7
MS Surrogates	3	3
MSD	7	7
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	6	6
Samples and QC Internal Standard Area	18	18
TOTAL	**126**	**126**
% Completeness	**100.00%**	

*A field blank and field blank duplicate were not received with this lot.

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3E130222					
Sample: W434-051203		DUP: W434D-051203			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	2.1	Acenaphthene	2.0	4.9	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	2.3	2,3-Dihydroindene	2.2	4.4	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E130222

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W434-051203 05/12/03 12:00 001				
Acenaphthene	2.1 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	2.3 J	10	ug/L	SW846 8270C
W434D-051203 05/12/03 12:10 002				
Acenaphthene	2.0 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	2.2 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3E130222

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E130222

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E130222

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FNL73	001	W434-051203	05/12/03	12:00
FNL77	002	W434D-051203	05/12/03	12:10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W434-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130222-001	**Work Order #...:** FNL731AA	**Matrix.....:** WG	
Date Sampled...: 05/12/03	**Date Received..:** 05/13/03		
Prep Date.....: 05/17/03	**Analysis Date..:** 06/06/03		
Prep Batch #...: 3136450	**Analysis Time..:** 21:58		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**2.1 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**2.3 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	45	(30 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	67	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W434D-051203

GC/MS Semivolatiles

Lot-Sample #...: D3E130222-002	**Work Order #...:** FNL771AA	**Matrix.....:** WG	
Date Sampled...: 05/12/03	**Date Received..:** 05/13/03		
Prep Date.....: 05/17/03	**Analysis Date..:** 06/06/03		
Prep Batch #...: 3136450	**Analysis Time..:** 23:53		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**2.0 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**2.2 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	62	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D3E130222

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3136450	3136202
002	WG	SW846 8270C		3136450	3136202

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130222 **Work Order #...:** FNWW61AA **Matrix.....:** WATER
MB Lot-Sample #: D3E160000-450

Prep Date.....: 05/17/03 **Analysis Time..:** 10:54
Analysis Date..: 06/06/03 **Prep Batch #...:** 3136450
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
ırysene	ND	10	ug/L	SW846 8270C
›ibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130222 **Work Order #...:** FNWW61AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E160000-450
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 11:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**89**	**(30 - 150)**	**SW846 8270C**
Chrysene	**87**	**(43 - 124)**	**SW846 8270C**
Fluorene	**81**	**(51 - 120)**	**SW846 8270C**
Indene	**66**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**64**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**68**	**(43 - 128)**	**SW846 8270C**
Quinoline	**75**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	97	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130222 **Work Order #...:** FNWW61AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E160000-450
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 11:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**44.6**	**ug/L**	**89**	**SW846 8270C**
Chrysene	**50.0**	**43.7**	**ug/L**	**87**	**SW846 8270C**
Fluorene	**50.0**	**40.4**	**ug/L**	**81**	**SW846 8270C**
Indene	**50.0**	**33.2**	**ug/L**	**66**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**32.1**	**ug/L**	**64**	**SW846 8270C**
Naphthalene	**50.0**	**33.8**	**ug/L**	**68**	**SW846 8270C**
Quinoline	**50.0**	**37.4**	**ug/L**	**75**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	97	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130222 **Work Order #...:** FNL731AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E130222-001 FNL731AD-MSD
Date Sampled...: 05/12/03 **Date Received..:** 05/13/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 22:37
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**80**	**(30 - 150)**			**SW846 8270C**
	83	**(30 - 150)**	**6.8**	**(0-30)**	**SW846 8270C**
Chrysene	**74**	**(43 - 124)**			**SW846 8270C**
	77	**(43 - 124)**	**6.1**	**(0-30)**	**SW846 8270C**
Fluorene	**76**	**(51 - 120)**			**SW846 8270C**
	81	**(51 - 120)**	**8.1**	**(0-30)**	**SW846 8270C**
Indene	**65**	**(49 - 108)**			**SW846 8270C**
	58	**(49 - 108)**	**10**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**64**	**(47 - 138)**			**SW846 8270C**
	56	**(47 - 138)**	**11**	**(0-30)**	**SW846 8270C**
Naphthalene	**68**	**(43 - 128)**			**SW846 8270C**
	60	**(43 - 128)**	**10**	**(0-30)**	**SW846 8270C**
Quinoline	**71**	**(40 - 126)**			**SW846 8270C**
	79	**(40 - 126)**	**13**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(30 - 160)
	57	(30 - 160)
Fluorene d-10	61	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	69	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E130222 **Work Order #...:** FNL731AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E130222-001 FNL731AD-MSD
Date Sampled...: 05/12/03 **Date Received..:** 05/13/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 22:37
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**47.9**	**38.1**	**ug/L**	**80**		**SW846 8270C**
	ND	**48.9**	**40.8**	**ug/L**	**83**	**6.8**	**SW846 8270C**
Chrysene	**ND**	**47.9**	**35.4**	**ug/L**	**74**		**SW846 8270C**
	ND	**48.9**	**37.6**	**ug/L**	**77**	**6.1**	**SW846 8270C**
Fluorene	**ND**	**47.9**	**36.6**	**ug/L**	**76**		**SW846 8270C**
	ND	**48.9**	**39.7**	**ug/L**	**81**	**8.1**	**SW846 8270C**
Indene	**ND**	**47.9**	**31.3**	**ug/L**	**65**		**SW846 8270C**
	ND	**48.9**	**28.2**	**ug/L**	**58**	**10**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**47.9**	**30.5**	**ug/L**	**64**		**SW846 8270C**
	ND	**48.9**	**27.2**	**ug/L**	**56**	**11**	**SW846 8270C**
Naphthalene	**ND**	**47.9**	**32.4**	**ug/L**	**68**		**SW846 8270C**
	ND	**48.9**	**29.2**	**ug/L**	**60**	**10**	**SW846 8270C**
Quinoline	**ND**	**47.9**	**33.9**	**ug/L**	**71**		**SW846 8270C**
	ND	**48.9**	**38.5**	**ug/L**	**79**	**13**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(30 - 160)
	57	(30 - 160)
Fluorene d-10	61	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	69	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Chain of Custody Record

5/13/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION Address: 3752 WOODDALE AVENUE City: ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 5-12-03	Chain of Custody Number: 150743
	Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Lab Number:	Page ____ of ____
Project Name and Location (State): SAME	Site Contact: SAME	Lab Contact:	Analysis (Attach list if more space is needed)
Contract/Purchase Order/Quote No.	Carrier/Waybill Number: FED EX 806824126 3		Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH		PPB PAH
W434-051203	5-12-03	12:00		X			X						2	X
W434D-051203	5-12-03	12:10		X			X						2	X
W434MS-051203	5-12-03	12:20		X			X						2	X
W434MSD-051203	5-12-03	12:30		X			X						2	X

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: MZW	5-12-03	1400	1. Received By:	5/13/03	0830
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E130222 (H)

July 2, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of two aqueous samples for parts per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on May 12, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E130222.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W434-051203
W434D-051203

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperature upon receipt at the laboratory was 4.6°C. The cooler temperature was within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3136450. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample W434-051203. All percent recoveries and relative percent differences (RPDs) were within the acceptable range.

Field Duplicate Results

A duplicate sample was submitted for this data set. W434-051203 had measurable concentrations for two target analytes. The percent recoveries and RPDs were within the accepted range.

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs), therefore, were not affected.

All laboratory reported quantitation limits for PPB analysis were at or below the reporting limits required by the QAPP.

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E140225

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

June 13, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3E140225

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eleven samples were received under chain of custody on May 14, 2003. The samples were received in good condition at temperatures of 4.6°C, 3.9°C, 3.8°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3E140225-001, 002 and 003 were analyzed at a dilution due to a high concentrations of target analytes in the samples. Analytes whose concentrations did not exceed the calibration range are reported from the undiluted analyses, while those compounds which required dilution are only reported from the diluted analyses. 2-Methylnaphthalene and naphthalene are reported in the undiluted analyses of sample 001 as a "E" flag to provide parent sample data for the MS/MSD performed on this sample.

The MSD performed on sample D3E140225-001 demonstrated a recovery that was below control limits for 2-methylnaphthalene. The MS was in control. The recoveries for naphthalene were not calculated because the sample amount was greater than four times the spike amount.

The MS/MSD associated with batch 3136450 was performed on a sample from another client and/or lot and was in control.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT: D3E140225		
ANALYSIS: PAHs by SW846-8270C		
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	62	62
MB Surrogates	6	6
LCS	14	14
LCS Surrogates	6	6
FB/FBD	62	62
MS	6	6
MS Surrogates	3	3
MSD	6	5
MSD Surrogates	3	3
MS/MSD RPD	6	6
Sample/Dup. RPD	31	31
Sample Surrogates	36	36
Samples and QC Internal Standard Area	51	51
TOTAL	**292**	**291**
% Completeness	**99.7%**	

*A MS/MSD was performed on sample W420-051303.
* Only the results from the MS/MSD performed on this sample are included in the calculation table.

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3E140225					
Sample: W420-051303		DUP: W420D-051303			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	120	Acenaphthene	120	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	2.0	Anthracene	2.0	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	45	2,3-Benzofuran	49	8.5	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	130	Benzo(b)thiophene	140	7.4	
Biphenyl	23	Biphenyl	23	0.0	
Carbazole	83	Carbazole	82	1.2	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	49	Dibenzofuran	49	0.0	
Dibenzothiophene	12	Dibenzothiophene	12	0.0	
2,3-Dihydroindene	300	2,3-Dihydroindene	320	6.5	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	51	Fluorene	50	2.0	
Indene	33	Indene	36	8.7	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	140	2-Methylnaphthalene	140	0.0	
1-Methylnaphthalene	140	1-Methylnaphthalene	140	0.0	
Naphthalene	2600	Naphthalene	2700	3.8	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	34	Phenanthrene	35	2.9	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	1.5	Quinoline	1.4	6.9	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E140225

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W420-051303 05/13/03 12:00 001				
Acenaphthene	120 J	500	ug/L	SW846 8270C
Anthracene	2.0 J	10	ug/L	SW846 8270C
2,3-Benzofuran	45	10	ug/L	SW846 8270C
Benzo(b)thiophene	130	10	ug/L	SW846 8270C
Biphenyl	23	10	ug/L	SW846 8270C
Carbazole	83	10	ug/L	SW846 8270C
Dibenzofuran	49	10	ug/L	SW846 8270C
Dibenzothiophene	12	10	ug/L	SW846 8270C
2,3-Dihydroindene	300 J	500	ug/L	SW846 8270C
Fluorene	51	10	ug/L	SW846 8270C
Indene	33	10	ug/L	SW846 8270C
2-Methylnaphthalene	160 E	10	ug/L	SW846 8270C
2-Methylnaphthalene	140 J	500	ug/L	SW846 8270C
1-Methylnaphthalene	140 J	500	ug/L	SW846 8270C
Naphthalene	2900 E	10	ug/L	SW846 8270C
Naphthalene	2600	500	ug/L	SW846 8270C
Phenanthrene	34	10	ug/L	SW846 8270C
Quinoline	1.5 J	10	ug/L	SW846 8270C
W420D-051303 05/13/03 12:10 002				
Acenaphthene	120 J	500	ug/L	SW846 8270C
Anthracene	2.0 J	10	ug/L	SW846 8270C
2,3-Benzofuran	49	10	ug/L	SW846 8270C
Benzo(b)thiophene	140	10	ug/L	SW846 8270C
Biphenyl	23	10	ug/L	SW846 8270C
Carbazole	82	10	ug/L	SW846 8270C
Dibenzofuran	49	10	ug/L	SW846 8270C
Dibenzothiophene	12	10	ug/L	SW846 8270C
2,3-Dihydroindene	320 J	500	ug/L	SW846 8270C
Fluorene	50	10	ug/L	SW846 8270C
Indene	36	10	ug/L	SW846 8270C
2-Methylnaphthalene	140 J	500	ug/L	SW846 8270C
1-Methylnaphthalene	140 J	500	ug/L	SW846 8270C
Naphthalene	2700	500	ug/L	SW846 8270C
Phenanthrene	35	10	ug/L	SW846 8270C
Quinoline	1.4 J	10	ug/L	SW846 8270C
W421-051303 05/13/03 12:40 003				
Acenaphthene	160	20	ug/L	SW846 8270C
Acenaphthylene	2.3 J	10	ug/L	SW846 8270C
Anthracene	59	10	ug/L	SW846 8270C

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3E140225

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W421-051303 05/13/03 12:40 003				
Benzo(a)anthracene	74	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	48	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	40	10	ug/L	SW846 8270C
Benzo(ghi)perylene	20	10	ug/L	SW846 8270C
Benzo(a)pyrene	48	10	ug/L	SW846 8270C
Benzo(e)pyrene	32	10	ug/L	SW846 8270C
Benzo(b)thiophene	27	10	ug/L	SW846 8270C
Biphenyl	20	10	ug/L	SW846 8270C
Carbazole	32	10	ug/L	SW846 8270C
Chrysene	56	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	6.5 J	10	ug/L	SW846 8270C
Dibenzofuran	81	10	ug/L	SW846 8270C
Dibenzothiophene	30	10	ug/L	SW846 8270C
2,3-Dihydroindene	110	10	ug/L	SW846 8270C
Fluoranthene	340	20	ug/L	SW846 8270C
Fluorene	150	10	ug/L	SW846 8270C
Indene	31	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	17	10	ug/L	SW846 8270C
2-Methylnaphthalene	59	10	ug/L	SW846 8270C
1-Methylnaphthalene	88	10	ug/L	SW846 8270C
Naphthalene	140	20	ug/L	SW846 8270C
Perylene	11	10	ug/L	SW846 8270C
Phenanthrene	510	20	ug/L	SW846 8270C
Pyrene	230	20	ug/L	SW846 8270C
W409-051303 05/13/03 11:00 004				
Acenaphthene	28	10	ug/L	SW846 8270C
Acenaphthylene	2.7 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	15	10	ug/L	SW846 8270C
Biphenyl	4.1 J	10	ug/L	SW846 8270C
Carbazole	9.3 J	10	ug/L	SW846 8270C
Dibenzofuran	8.2 J	10	ug/L	SW846 8270C
Dibenzothiophene	1.3 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	8.0 J	10	ug/L	SW846 8270C
Fluorene	11	10	ug/L	SW846 8270C
Indene	28	10	ug/L	SW846 8270C
1-Methylnaphthalene	27	10	ug/L	SW846 8270C
Naphthalene	17	10	ug/L	SW846 8270C
Phenanthrene	11	10	ug/L	SW846 8270C

METHODS SUMMARY

D3E140225

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E140225

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E140225

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FNN87	001	W420-051303	05/13/03	12:00
FNN89	002	W420D-051303	05/13/03	12:10
FNN9C	003	W421-051303	05/13/03	12:40
FNN9J	004	W409-051303	05/13/03	11:00
FNN9T	005	W409FB-051303	05/13/03	10:50
FNN90	006	W409FBD-051303	05/13/03	10:55
FNN92	007	W428-051303	05/13/03	11:40
FNN96	008	W143-051303	05/13/03	14:30
FNN98	009	W438-051303	05/13/03	15:00
FNPAA	010	W431-051303	05/13/03	16:00
FNPAC	011	W131-051303	05/13/03	17:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-001	**Work Order #...:** FNN871AA	**Matrix.....:** WG
Date Sampled...: 05/13/03	**Date Received..:** 05/14/03	
Prep Date.....: 05/20/03	**Analysis Date..:** 06/07/03	
Prep Batch #...: 3140180	**Analysis Time..:** 11:39	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**2.0 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**45**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**130**	**10**	**ug/L**
Biphenyl	**23**	**10**	**ug/L**
Carbazole	**83**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**49**	**10**	**ug/L**
Dibenzothiophene	**12**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**51**	**10**	**ug/L**
Indene	**33**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**160 E**	**10**	**ug/L**
Naphthalene	**2900 E**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**34**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	**1.5 J**	**10**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	70	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-001 Work Order #...: FNN872AA Matrix.....: WG
Date Sampled...: 05/13/03 Date Received..: 05/14/03
Prep Date.....: 05/20/03 Analysis Date..: 06/07/03
Prep Batch #...: 3140180 Analysis Time..: 14:49
Dilution Factor: 50
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	120 J	500	ug/L
2,3-Dihydroindene	300 J	500	ug/L
2-Methylnaphthalene	140 J	500	ug/L
1-Methylnaphthalene	140 J	500	ug/L
Naphthalene	2600	500	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-002 Work Order #...: FNN891AA Matrix.....: WG
Date Sampled...: 05/13/03 Date Received..: 05/14/03
Prep Date.....: 05/20/03 Analysis Date..: 06/07/03
Prep Batch #...: 3140180 Analysis Time..: 13:33
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**2.0 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**49**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**140**	**10**	**ug/L**
Biphenyl	**23**	**10**	**ug/L**
Carbazole	**82**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**49**	**10**	**ug/L**
Dibenzothiophene	**12**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**50**	**10**	**ug/L**
Indene	**36**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	**35**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	**1.4 J**	**10**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	72	(30 - 160)
Fluorene d-10	61	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-002	Work Order #...: FNN892AA	Matrix.....: WG	
Date Sampled...: 05/13/03	Date Received..: 05/14/03		
Prep Date.....: 05/20/03	Analysis Date..: 06/07/03		
Prep Batch #...: 3140180	Analysis Time..: 15:26		
Dilution Factor: 50			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	120 J	500	ug/L
2,3-Dihydroindene	320 J	500	ug/L
2-Methylnaphthalene	140 J	500	ug/L
1-Methylnaphthalene	140 J	500	ug/L
Naphthalene	2700	500	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W421-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-003 Work Order #...: FNN9C1AA Matrix.....: WG
Date Sampled...: 05/13/03 Date Received..: 05/14/03
Prep Date.....: 05/20/03 Analysis Date..: 06/07/03
Prep Batch #...: 3140180 Analysis Time..: 14:11
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**2.3 J**	**10**	**ug/L**
Acridine	ND	10	ug/L
Anthracene	**59**	**10**	**ug/L**
Benzo(a)anthracene	**74**	**10**	**ug/L**
Benzo(b)fluoranthene	**48**	**10**	**ug/L**
Benzo(k)fluoranthene	**40**	**10**	**ug/L**
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	**20**	**10**	**ug/L**
Benzo(a)pyrene	**48**	**10**	**ug/L**
Benzo(e)pyrene	**32**	**10**	**ug/L**
Benzo(b)thiophene	**27**	**10**	**ug/L**
Biphenyl	**20**	**10**	**ug/L**
Carbazole	**32**	**10**	**ug/L**
Chrysene	**56**	**10**	**ug/L**
Dibenzo(a,h)anthracene	**6.5 J**	**10**	**ug/L**
Dibenzofuran	**81**	**10**	**ug/L**
Dibenzothiophene	**30**	**10**	**ug/L**
2,3-Dihydroindene	**110**	**10**	**ug/L**
Fluorene	**150**	**10**	**ug/L**
Indene	**31**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	**17**	**10**	**ug/L**
Indole	ND	10	ug/L
2-Methylnaphthalene	**59**	**10**	**ug/L**
1-Methylnaphthalene	**88**	**10**	**ug/L**
Perylene	**11**	**10**	**ug/L**
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	63	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W421-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-003 Work Order #...: FNN9C2AA Matrix.....: WG
Date Sampled...: 05/13/03 Date Received..: 05/14/03
Prep Date.....: 05/20/03 Analysis Date..: 06/07/03
Prep Batch #...: 3140180 Analysis Time..: 16:04
Dilution Factor: 2
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	160	20	ug/L
Fluoranthene	340	20	ug/L
Naphthalene	140	20	ug/L
Phenanthrene	510	20	ug/L
Pyrene	230	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
Fluorene d-10	52	(36 - 127)
Naphthalene-d8	58	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W409-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-004 Work Order #...: FNN9J1AA Matrix.....: WG
Date Sampled...: 05/13/03 Date Received..: 05/14/03
Prep Date.....: 05/17/03 Analysis Date..: 06/07/03
Prep Batch #...: 3136450 Analysis Time..: 00:31
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**28**	**10**	**ug/L**
Acenaphthylene	**2.7 J**	**10**	**ug/L**
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**15**	**10**	**ug/L**
Biphenyl	**4.1 J**	**10**	**ug/L**
Carbazole	**9.3 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**8.2 J**	**10**	**ug/L**
Dibenzothiophene	**1.3 J**	**10**	**ug/L**
2,3-Dihydroindene	**8.0 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**11**	**10**	**ug/L**
Indene	**28**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**27**	**10**	**ug/L**
Naphthalene	**17**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**11**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	58	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W409FB-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-005	**Work Order #...:** FNN9T1AA	**Matrix.....:** WG
Date Sampled...: 05/13/03	**Date Received..:** 05/14/03	
Prep Date.....: 05/17/03	**Analysis Date..:** 06/07/03	
Prep Batch #...: 3136450	**Analysis Time..:** 01:10	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	67	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W409FBD-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-006 **Work Order #...:** FNN901AA **Matrix.....:** WG
Date Sampled...: 05/13/03 **Date Received..:** 05/14/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3136450 **Analysis Time..:** 01:48
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	60	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W428-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-007 **Work Order #...:** FNN921AA **Matrix.....:** WG
Date Sampled...: 05/13/03 **Date Received..:** 05/14/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3136450 **Analysis Time..:** 02:26
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	75	(30 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	62	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W143-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-008 **Work Order #...:** FNN961AA **Matrix.....:** WG
Date Sampled...: 05/13/03 **Date Received..:** 05/14/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3136450 **Analysis Time..:** 11:00
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	59	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W438-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-009	**Work Order #...:** FNN981AA	**Matrix.....:** WG	
Date Sampled...: 05/13/03	**Date Received..:** 05/14/03		
Prep Date.....: 05/17/03	**Analysis Date..:** 06/07/03		
Prep Batch #...: 3136450	**Analysis Time..:** 03:42		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	51	(30 - 160)
Fluorene d-10	55	(36 - 127)
Naphthalene-d8	60	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W431-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-010 **Work Order #...:** FNPAA1AA **Matrix.....:** WG
Date Sampled...: 05/13/03 **Date Received..:** 05/14/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3136450 **Analysis Time..:** 04:21
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(30 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	64	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W131-051303

GC/MS Semivolatiles

Lot-Sample #...: D3E140225-011 Work Order #...: FNPAC1AA Matrix.....: WG
Date Sampled...: 05/13/03 Date Received..: 05/14/03
Prep Date.....: 05/17/03 Analysis Date..: 06/07/03
Prep Batch #...: 3136450 Analysis Time..: 04:59
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(30 - 160)
Fluorene d-10	65	(36 - 127)
Naphthalene-d8	64	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3E140225

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3140180	3140063
002	WG	SW846 8270C		3140180	3140063
003	WG	SW846 8270C		3140180	3140063
004	WG	SW846 8270C		3136450	3136202
005	WG	SW846 8270C		3136450	3136202
006	WG	SW846 8270C		3136450	3136202
007	WG	SW846 8270C		3136450	3136202
008	WG	SW846 8270C		3136450	3136202
009	WG	SW846 8270C		3136450	3136202
010	WG	SW846 8270C		3136450	3136202
011	WG	SW846 8270C		3136450	3136202

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FNWW61AA **Matrix.....:** WATER
MB Lot-Sample #: D3E160000-450

Prep Date.....: 05/17/03 **Analysis Time..:** 10:54
Analysis Date..: 06/06/03 **Prep Batch #...:** 3136450
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FN1651AA **Matrix.....:** WATER
MB Lot-Sample #: D3E200000-180

Prep Date.....: 05/20/03 **Analysis Time..:** 09:43
Analysis Date..: 06/07/03 **Prep Batch #...:** 3140180
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	78	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	68	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FNWW61AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E160000-450
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 11:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**89**	**(30 - 150)**	**SW846 8270C**
Chrysene	**87**	**(43 - 124)**	**SW846 8270C**
Fluorene	**81**	**(51 - 120)**	**SW846 8270C**
Indene	**66**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**64**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**68**	**(43 - 128)**	**SW846 8270C**
Quinoline	**75**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	97	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FNWW61AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E160000-450
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 11:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**44.6**	**ug/L**	**89**	**SW846 8270C**
Chrysene	**50.0**	**43.7**	**ug/L**	**87**	**SW846 8270C**
Fluorene	**50.0**	**40.4**	**ug/L**	**81**	**SW846 8270C**
Indene	**50.0**	**33.2**	**ug/L**	**66**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**32.1**	**ug/L**	**64**	**SW846 8270C**
Naphthalene	**50.0**	**33.8**	**ug/L**	**68**	**SW846 8270C**
Quinoline	**50.0**	**37.4**	**ug/L**	**75**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	97	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FN1651AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E200000-180
Prep Date.....: 05/20/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3140180 **Analysis Time..:** 10:21
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**71**	**(30 - 150)**	**SW846 8270C**
Chrysene	**67**	**(43 - 124)**	**SW846 8270C**
Fluorene	**69**	**(51 - 120)**	**SW846 8270C**
Indene	**62**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**62**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**66**	**(43 - 128)**	**SW846 8270C**
Quinoline	**62**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	66	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FN1651AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E200000-180
Prep Date.....: 05/20/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3140180 **Analysis Time..:** 10:21
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**35.3**	**ug/L**	**71**	**SW846 8270C**
Chrysene	**50.0**	**33.3**	**ug/L**	**67**	**SW846 8270C**
Fluorene	**50.0**	**34.7**	**ug/L**	**69**	**SW846 8270C**
Indene	**50.0**	**31.2**	**ug/L**	**62**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**31.1**	**ug/L**	**62**	**SW846 8270C**
Naphthalene	**50.0**	**33.0**	**ug/L**	**66**	**SW846 8270C**
Quinoline	**50.0**	**31.0**	**ug/L**	**62**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	66	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FNL731AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E130222-001 FNL731AD-MSD
Date Sampled...: 05/12/03 **Date Received..:** 05/13/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 22:37
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**80**	**(30 - 150)**			**SW846 8270C**
	83	**(30 - 150)**	**6.8**	**(0-30)**	**SW846 8270C**
Chrysene	**74**	**(43 - 124)**			**SW846 8270C**
	77	**(43 - 124)**	**6.1**	**(0-30)**	**SW846 8270C**
Fluorene	**76**	**(51 - 120)**			**SW846 8270C**
	81	**(51 - 120)**	**8.1**	**(0-30)**	**SW846 8270C**
Indene	**65**	**(49 - 108)**			**SW846 8270C**
	58	**(49 - 108)**	**10**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**64**	**(47 - 138)**			**SW846 8270C**
	56	**(47 - 138)**	**11**	**(0-30)**	**SW846 8270C**
Naphthalene	**68**	**(43 - 128)**			**SW846 8270C**
	60	**(43 - 128)**	**10**	**(0-30)**	**SW846 8270C**
Quinoline	**71**	**(40 - 126)**			**SW846 8270C**
	79	**(40 - 126)**	**13**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(30 - 160)
	57	(30 - 160)
Fluorene d-10	61	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	69	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FNL731AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3E130222-001 FNL731AD-MSD
Date Sampled...: 05/12/03 **Date Received..:** 05/13/03
Prep Date.....: 05/17/03 **Analysis Date..:** 06/06/03
Prep Batch #...: 3136450 **Analysis Time..:** 22:37
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**47.9**	**38.1**	**ug/L**	**80**		**SW846 8270C**
	ND	**48.9**	**40.8**	**ug/L**	**83**	**6.8**	**SW846 8270C**
Chrysene	**ND**	**47.9**	**35.4**	**ug/L**	**74**		**SW846 8270C**
	ND	**48.9**	**37.6**	**ug/L**	**77**	**6.1**	**SW846 8270C**
Fluorene	**ND**	**47.9**	**36.6**	**ug/L**	**76**		**SW846 8270C**
	ND	**48.9**	**39.7**	**ug/L**	**81**	**8.1**	**SW846 8270C**
Indene	**ND**	**47.9**	**31.3**	**ug/L**	**65**		**SW846 8270C**
	ND	**48.9**	**28.2**	**ug/L**	**58**	**10**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**47.9**	**30.5**	**ug/L**	**64**		**SW846 8270C**
	ND	**48.9**	**27.2**	**ug/L**	**56**	**11**	**SW846 8270C**
Naphthalene	**ND**	**47.9**	**32.4**	**ug/L**	**68**		**SW846 8270C**
	ND	**48.9**	**29.2**	**ug/L**	**60**	**10**	**SW846 8270C**
Quinoline	**ND**	**47.9**	**33.9**	**ug/L**	**71**		**SW846 8270C**
	ND	**48.9**	**38.5**	**ug/L**	**79**	**13**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(30 - 160)
	57	(30 - 160)
Fluorene d-10	61	(36 - 127)
	67	(36 - 127)
Naphthalene-d8	69	(37 - 107)
	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FNN871AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E140225-001 FNN871AD-MSD
Date Sampled...: 05/13/03 **Date Received..:** 05/14/03
Prep Date.....: 05/20/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3140180 **Analysis Time..:** 12:17
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**68**	**(30 - 150)**			**SW846 8270C**
	67	**(30 - 150)**	**2.8**	**(0-30)**	**SW846 8270C**
Chrysene	**64**	**(43 - 124)**			**SW846 8270C**
	63	**(43 - 124)**	**2.0**	**(0-30)**	**SW846 8270C**
Fluorene	**70**	**(51 - 120)**			**SW846 8270C**
	60	**(51 - 120)**	**5.8**	**(0-30)**	**SW846 8270C**
Indene	**65**	**(49 - 108)**			**SW846 8270C**
	57	**(49 - 108)**	**6.3**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**58**	**(47 - 138)**			**SW846 8270C**
	23 a	**(47 - 138)**	**9.5**	**(0-30)**	**SW846 8270C**
Naphthalene	**NC**	**(43 - 128)**			**SW846 8270C**
	NC	**(43 - 128)**		**(0-30)**	**SW846 8270C**
Quinoline	**68**	**(40 - 126)**			**SW846 8270C**
	66	**(40 - 126)**	**2.8**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
	72	(30 - 160)
Fluorene d-10	58	(36 - 127)
	57	(36 - 127)
Naphthalene-d8	67	(37 - 107)
	68	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

NC The recovery and/or RPD were not calculated.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E140225 **Work Order #...:** FNN871AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E140225-001 FNN871AD-MSD
Date Sampled...: 05/13/03 **Date Received..:** 05/14/03
Prep Date.....: 05/20/03 **Analysis Date..:** 06/07/03
Prep Batch #...: 3140180 **Analysis Time..:** 12:17
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	ND	48.3	33.0	ug/L	68		SW846 8270C
	ND	48.2	32.1	ug/L	67	2.8	SW846 8270C
Chrysene	ND	48.3	30.9	ug/L	64		SW846 8270C
	ND	48.2	30.3	ug/L	63	2.0	SW846 8270C
Fluorene	51	48.3	84.9	ug/L	70		SW846 8270C
	51	48.2	80.0	ug/L	60	5.8	SW846 8270C
Indene	33	48.3	64.3	ug/L	65		SW846 8270C
	33	48.2	60.4	ug/L	57	6.3	SW846 8270C
2-Methylnaphthalene	160	48.3	190	ug/L	58		SW846 8270C
	160	48.2	173	ug/L	23 a	9.5	SW846 8270C
Naphthalene	2900	48.3		ug/L	NC		SW846 8270C
	2900	48.2		ug/L	NC		SW846 8270C
Quinoline	1.5	48.3	34.3	ug/L	68		SW846 8270C
	1.5	48.2	33.3	ug/L	66	2.8	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
	72	(30 - 160)
Fluorene d-10	58	(36 - 127)
	57	(36 - 127)
Naphthalene-d8	67	(37 - 107)
	68	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

NC The recovery and/or RPD were not calculated.

Chain of Custody Record

4.6° WB 5/14/03

SEVERN TRENT SERVICES — **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	SCOTT ANDERSON	5-13-03	150744
Address / City	Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Lab Number	Page ____ of ____
Project Name and Location (State): SAME	Site Contact: SAME / Lab Contact	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.	Carrier/Waybill Number: FED EX 8068 2412 52	PPB PAH	

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH		PPB PAH
W420-051303	5-13-03	12:00		X			X						2	X
W420D-051303		12:10		X			X						2	X
W420MS-051303		12:20		X			X						2	X
W420MSD-051303		12:30		X			X						2	X
W421-051303	5-13-03	12:40		X			X						2	X

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: TJ P	5-13-03	1400	1. Received By: Steven Birrell	5/14/03	0915
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

[redacted]

Chain of Custody Record

3.9° 5/14/03

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 5/13/02	Chain of Custody Number: 150722
Address: 3557 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Bill Gregg	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB	Special Instructions/ Conditions of Receipt
W409-051303	5/13/03	1100		X			2						X	
W409FB-051303		1050												
W409FBD-051303		1055												
W428-051303		1140												
W143-051303		1430												
W438-051303		1500												

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: AJ Faran	5/13/03	1500	1. Received By: Aaron Burdett	5/14/03	0915
2. Relinquished By	Date	Time	2 Received By	Date	Time
3. Relinquished By	Date	Time	3 Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

3.8 NB 3/14/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	5/13/03	150721
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
3557 Wooddale	952 924 2557		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416	Bill Gregg	Brian Stringer	
Project Name and Location (State)	**Carrier/Waybill Number**		
Reilly			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH 8270	Special Instructions/ Conditions of Receipt
W431-051303	5/13/03	1600		X			2						X	
W131-051303	↓	1745		↓			↓						↓	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	5/13/03	1800	1. Received By	5/14/03	0915
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E140225 (I)

July 2, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of 11 aqueous samples for parts per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on May 13, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E140225.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W420-051303
W420D-051303
W421-051303
W409-051303
W409FB-051303
W409FBD-051303
W428-051303
W143-051303
W438-051303
W431-051303
W131-051303

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks

- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 3.8°C and 4.6°C. The cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There were two method blanks for this data package, batch 3136450 and 3140180. Target analytes were not detected in the laboratory method blanks. In addition to the method blanks, a field blank and field blank duplicate were also submitted with this data set. Samples W409FB-051303 and W409FBD-051303 did not have any of the target analytes detected.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the two LCSs associated with all sample analyses.

MS/MSD Results

Two MS/MSD analyses were performed for this data set. Sample W434-051203 from data package D3E130222 had all percect recoveries and relative percent differences (RPDs) within the acceptable range. Sample W420-051303 had all percent recoveries and RPDs within the acceptable range except for 2-methylnaphthalene. The percent recovery was 23 for the MSD and fell outside the range of 47-138.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
2-Methylnaphthalene	ok/23	ok	47-138/0-30

Field Duplicate Results

Duplicate samples were submitted for W420-051303 with this data set. A total of 16 out of 31 target analytes were detected in the samples. The percent recoveries and RPDs were within range for all analytes.

Quantitation Limits and Sample Results

All samples were analyzed undiluted with the exception of samples W420-051303 and W420D-051303, which were diluted at 50x due to elevated concentrations of 2-methylnaphthalene and naphthalene. Sample quantitation limits (SQLs), were adjusted accordingly by the lab.

All laboratory reported quantitation limits for PPB analysis were at or below the reporting limits required by the QAPP.

J

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E200234

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

June 19, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3E200234

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eight samples were received under chain of custody on May 20, 2003. The samples were received in good condition at temperatures of 3.2°C, 2.4°C, 2.6°C & 3.6°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3E200234-001 through 004 demonstrated recoveries of the surrogate chrysene-d12 of 12%, 20%, 23%, and 13% respectively, that were below control limits. The other two surrogates were in control. This may indicate a low bias in the sample data; however no sample volume was left for reanalysis and no further corrective action was taken.

Samples D3E200234-005 and 006 demonstrated recoveries of the surrogate fluorene d-10 of 39% and 36% respectively, that were below control limits. The other two surrogates were in control. This may indicate a low bias in the sample data; however no sample volume was left for reanalysis and further corrective action was taken.

Sample D3E200234-008 demonstrated recoveries of the surrogates chrysene-d12 and fluorene d-10 of 25% and 40% respectively, that were below control limits. This may indicate a low bias in the sample data; however no sample volume was left for reanalysis and therefore no further corrective action was taken.

The MS/MSD performed on sample D3E200234-007 demonstrated recoveries that were below control limits for benzo (e) pyrene.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT: D3E200234		
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	6
MS Surrogates	3	2
MSD	7	6
MSD Surrogates	3	2
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	24	16
Samples and QC Internal Standard Area	36	36
TOTAL	**224**	**212**
% Completeness	**94.6%**	

*A MS/MSD was performed on sample SLP3-051903.

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3E200234					
Sample: SLP3-051903		DUP: SLP3D-051903			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E200234

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W133-051903 05/19/03 11:55 001				
Acenaphthene	7.7	5.7	ng/L	SW846 8270C SIM
Acridine	6.7	6.2	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	1.4 J	4.7	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	1.9 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	1.2 J	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	1.4 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	5.1 J	5.2	ng/L	SW846 8270C SIM
Carbazole	2.7 J	3.8	ng/L	SW846 8270C SIM
Dibenzothiophene	1.0 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	15	5.0	ng/L	SW846 8270C SIM
Fluoranthene	5.4	4.6	ng/L	SW846 8270C SIM
Fluorene	3.0 J	4.1	ng/L	SW846 8270C SIM
Indene	8.0	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	1.4 J	5.4	ng/L	SW846 8270C SIM
2-Methylnaphthalene	13	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	9.8	5.6	ng/L	SW846 8270C SIM
Naphthalene	21	8.6	ng/L	SW846 8270C SIM
Phenanthrene	7.8	6.3	ng/L	SW846 8270C SIM
Pyrene	6.0	4.2	ng/L	SW846 8270C SIM
W411-051903 05/19/03 11:20 002				
Acenaphthene	18	5.7	ng/L	SW846 8270C SIM
Acridine	6.8	6.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	11	4.3	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	4.4 J	6.2	ng/L	SW846 8270C SIM
Benzo(e)pyrene	2.5 J	4.3	ng/L	SW846 8270C SIM
Carbazole	6.6	3.8	ng/L	SW846 8270C SIM
Chrysene	23	5.6	ng/L	SW846 8270C SIM
2,3-Dihydroindene	4.6 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	7.8	4.6	ng/L	SW846 8270C SIM
Fluorene	2.6 J	4.1	ng/L	SW846 8270C SIM
Indene	4.9	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	7.3	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	5.8	5.6	ng/L	SW846 8270C SIM
Naphthalene	15	8.6	ng/L	SW846 8270C SIM
Phenanthrene	12	6.3	ng/L	SW846 8270C SIM
Pyrene	19	4.2	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3E200234

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W122-051903 05/19/03 14:30 003				
Acenaphthene	5.2 J	5.7	ng/L	SW846 8270C SIM
Benzo(a)anthracene	7.2	4.3	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	5.4 J	6.2	ng/L	SW846 8270C SIM
Benzo(e)pyrene	2.8 J	4.3	ng/L	SW846 8270C SIM
Carbazole	3.4 J	3.8	ng/L	SW846 8270C SIM
Chrysene	16	5.6	ng/L	SW846 8270C SIM
2,3-Dihydroindene	3.3 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	4.6	4.6	ng/L	SW846 8270C SIM
Indene	4.4 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	5.4 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	3.6 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	11	8.6	ng/L	SW846 8270C SIM
Phenanthrene	8.8	6.3	ng/L	SW846 8270C SIM
Pyrene	20	4.2	ng/L	SW846 8270C SIM
W412-051903 05/19/03 15:45 004				
Acridine	2.7 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	2.6 J	4.7	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	4.3 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	2.7	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	4.5	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	4.9 J	5.2	ng/L	SW846 8270C SIM
Carbazole	5.2	3.8	ng/L	SW846 8270C SIM
Dibenzothiophene	1.4 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	3.9 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	11	4.6	ng/L	SW846 8270C SIM
Indene	5.1	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	2.3 J	5.4	ng/L	SW846 8270C SIM
Naphthalene	16	8.6	ng/L	SW846 8270C SIM
Phenanthrene	11	6.3	ng/L	SW846 8270C SIM
Pyrene	16	4.2	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3E200234

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E200234

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E200234

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FN3JP	001	W133-051903	05/19/03	11:55
FN3J4	002	W411-051903	05/19/03	11:20
FN3J5	003	W122-051903	05/19/03	14:30
FN3J6	004	W412-051903	05/19/03	15:45
FN3J8	005	W412FB-051903	05/19/03	15:35
FN3KA	006	W412FBD-051903	05/19/03	15:40
FN3KG	007	SLP3-051903	05/19/03	11:00
FN3KP	008	SLP3D-051903	05/19/03	11:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W133-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-001 Work Order #...: FN3JP1AA Matrix.....: WG
Date Sampled...: 05/19/03 Date Received..: 05/20/03
Prep Date.....: 05/23/03 Analysis Date..: 06/16/03
Prep Batch #...: 3143185 Analysis Time..: 22:14
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	7.7	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	6.7	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	1.4 J	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	1.9 J	6.2	ng/L
Benzo(a)pyrene	1.2 J	2.5	ng/L
Benzo(e)pyrene	1.4 J	4.3	ng/L
Benzo(b)thiophene	5.1 J	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	2.7 J	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	1.0 J	4.1	ng/L
2,3-Dihydroindene	15	5.0	ng/L
Fluoranthene	5.4	4.6	ng/L
Fluorene	3.0 J	4.1	ng/L
Indene	8.0	4.7	ng/L
Indeno(1,2,3-cd)pyrene	1.4 J	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	13	5.9	ng/L
1-Methylnaphthalene	9.8	5.6	ng/L
Naphthalene	21	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	7.8	6.3	ng/L
Pyrene	6.0	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	12 *	(30 - 118)
Fluorene d-10	41	(41 - 162)
Naphthalene-d8	50	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W411-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-002 Work Order #...: FN3J41AA Matrix.....: WG
Date Sampled...: 05/19/03 Date Received..: 05/20/03
Prep Date.....: 05/23/03 Analysis Date..: 06/16/03
Prep Batch #...: 3143185 Analysis Time..: 22:52
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**18**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**6.8**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	**11**	**4.3**	**ng/L**
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**4.4 J**	**6.2**	**ng/L**
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	**2.5 J**	**4.3**	**ng/L**
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	**6.6**	**3.8**	**ng/L**
Chrysene	**23**	**5.6**	**ng/L**
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**4.6 J**	**5.0**	**ng/L**
Fluoranthene	**7.8**	**4.6**	**ng/L**
Fluorene	**2.6 J**	**4.1**	**ng/L**
Indene	**4.9**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**7.3**	**5.9**	**ng/L**
1-Methylnaphthalene	**5.8**	**5.6**	**ng/L**
Naphthalene	**15**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**12**	**6.3**	**ng/L**
Pyrene	**19**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20 *	(30 - 118)
Fluorene d-10	48	(41 - 162)
Naphthalene-d8	43	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W122-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-003 Work Order #...: FN3J51AA Matrix.....: WG
Date Sampled...: 05/19/03 Date Received..: 05/20/03
Prep Date.....: 05/23/03 Analysis Date..: 06/16/03
Prep Batch #...: 3143185 Analysis Time..: 23:30
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**5.2 J**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	**7.2**	**4.3**	**ng/L**
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**5.4 J**	**6.2**	**ng/L**
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	**2.8 J**	**4.3**	**ng/L**
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	**3.4 J**	**3.8**	**ng/L**
Chrysene	**16**	**5.6**	**ng/L**
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**3.3 J**	**5.0**	**ng/L**
Fluoranthene	**4.6**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	**4.4 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**5.4 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**3.6 J**	**5.6**	**ng/L**
Naphthalene	**11**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**8.8**	**6.3**	**ng/L**
Pyrene	**20**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	23 *	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	47	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W412-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-004 Work Order #...: FN3J61AA Matrix.....: WG
Date Sampled...: 05/19/03 Date Received..: 05/20/03
Prep Date.....: 05/23/03 Analysis Date..: 06/17/03
Prep Batch #...: 3143185 Analysis Time..: 00:08
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	**2.7 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	**2.6 J**	**4.7**	**ng/L**
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**4.3 J**	**6.2**	**ng/L**
Benzo(a)pyrene	**2.7**	**2.5**	**ng/L**
Benzo(e)pyrene	**4.5**	**4.3**	**ng/L**
Benzo(b)thiophene	**4.9 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**5.2**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	**1.4 J**	**4.1**	**ng/L**
2,3-Dihydroindene	**3.9 J**	**5.0**	**ng/L**
Fluoranthene	**11**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	**5.1**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	**2.3 J**	**5.4**	**ng/L**
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**16**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**11**	**6.3**	**ng/L**
Pyrene	**16**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	13 *	(30 - 118)
Fluorene d-10	41	(41 - 162)
Naphthalene-d8	34	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W412FB-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-005	**Work Order #...:** FN3J81AA	**Matrix.....:** WG	
Date Sampled...: 05/19/03	**Date Received..:** 05/20/03		
Prep Date.....: 05/23/03	**Analysis Date..:** 06/17/03		
Prep Batch #...: 3143185	**Analysis Time..:** 00:46		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	67	(30 - 118)
Fluorene d-10	39 *	(41 - 162)
Naphthalene-d8	36	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: W412FBD-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-006 **Work Order #...:** FN3KA1AA **Matrix.....:** WG
Date Sampled...: 05/19/03 **Date Received..:** 05/20/03
Prep Date.....: 05/23/03 **Analysis Date..:** 06/17/03
Prep Batch #...: 3143185 **Analysis Time..:** 01:23
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	50	(30 - 118)
Fluorene d-10	36 *	(41 - 162)
Naphthalene-d8	46	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP3-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-007 Work Order #...: FN3KG1AA Matrix.....: WG
Date Sampled...: 05/19/03 Date Received..: 05/20/03
Prep Date.....: 05/23/03 Analysis Date..: 06/16/03
Prep Batch #...: 3143185 Analysis Time..: 20:19
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(30 - 118)
Fluorene d-10	59	(41 - 162)
Naphthalene-d8	61	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: SLP3D-051903

GC/MS Semivolatiles

Lot-Sample #...: D3E200234-008	**Work Order #...:** FN3KP1AA	**Matrix.....:** WG	
Date Sampled...: 05/19/03	**Date Received..:** 05/20/03		
Prep Date.....: 05/23/03	**Analysis Date..:** 06/17/03		
Prep Batch #...: 3143185	**Analysis Time..:** 13:51		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	40 *	(41 - 162)
Naphthalene-d8	47	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

QC DATA ASSOCIATION SUMMARY

D3E200234

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3143185	3143064
002	WG	SW846 8270C SIM		3143185	3143064
003	WG	SW846 8270C SIM		3143185	3143064
004	WG	SW846 8270C SIM		3143185	3143064
005	WG	SW846 8270C SIM		3143185	3143064
006	WG	SW846 8270C SIM		3143185	3143064
007	WG	SW846 8270C SIM		3143185	3143064
008	WG	SW846 8270C SIM		3143185	3143064

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E200234 **Work Order #...:** FN92P1AA **Matrix.....:** WATER
MB Lot-Sample #: D3E230000-185

Prep Date.....: 05/23/03 **Analysis Time..:** 19:02
Analysis Date..: 06/16/03 **Prep Batch #...:** 3143185
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	58	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E200234 **Work Order #...:** FN92P1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E230000-185
Prep Date.....: 05/23/03 **Analysis Date..:** 06/16/03
Prep Batch #...: 3143185 **Analysis Time..:** 19:41
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**83**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**72**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**64**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**68**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**65**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**74**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**55**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	76	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	64	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E200234 **Work Order #...:** FN92P1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E230000-185
Prep Date.....: 05/23/03 **Analysis Date..:** 06/16/03
Prep Batch #...: 3143185 **Analysis Time..:** 19:41
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**8.26**	**ng/L**	**83**	**SW846 8270C S**
Chrysene	**10.0**	**7.18**	**ng/L**	**72**	**SW846 8270C S**
Fluorene	**10.0**	**6.44**	**ng/L**	**64**	**SW846 8270C S**
Indene	**10.0**	**6.82**	**ng/L**	**68**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**6.50**	**ng/L**	**65**	**SW846 8270C S**
Naphthalene	**10.0**	**7.41**	**ng/L**	**74**	**SW846 8270C S**
Quinoline	**10.0**	**5.52**	**ng/L**	**55**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	76	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	64	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print *denotes control parameters*

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E200234 **Work Order #...:** FN3KG1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E200234-007 FN3KG1AD-MSD
Date Sampled...: 05/19/03 **Date Received..:** 05/20/03
Prep Date.....: 05/23/03 **Analysis Date..:** 06/16/03
Prep Batch #...: 3143185 **Analysis Time..:** 20:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**10 a**	**(30 - 150)**			**SW846 8270C SIM**
	13 a	**(30 - 150)**	**29**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**30**	**(30 - 132)**			**SW846 8270C SIM**
	33	**(30 - 132)**	**13**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**59**	**(30 - 132)**			**SW846 8270C SIM**
	54	**(30 - 132)**	**7.0**	**(0-50)**	**SW846 8270C SIM**
Indene	**56**	**(30 - 150)**			**SW846 8270C SIM**
	55	**(30 - 150)**	**1.2**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**56**	**(30 - 150)**			**SW846 8270C SIM**
	55	**(30 - 150)**	**0.63**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**71**	**(30 - 150)**			**SW846 8270C SIM**
	68	**(30 - 150)**	**1.8**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**58**	**(30 - 150)**			**SW846 8270C SIM**
	57	**(30 - 150)**	**0.73**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	28 *	(30 - 118)
	28 *	(30 - 118)
Fluorene d-10	50	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	54	(30 - 108)
	56	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E200234 **Work Order #...:** FN3KG1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E200234-007 FN3KG1AD-MSD
Date Sampled...: 05/19/03 **Date Received..:** 05/20/03
Prep Date.....: 05/23/03 **Analysis Date..:** 06/16/03
Prep Batch #...: 3143185 **Analysis Time..:** 20:57
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**10.0**	**1.03**	**ng/L**	**10 a**		**SW846 8270C SIM**
	ND	**10.3**	**1.37**	**ng/L**	**13 a**	**29**	**SW846 8270C SIM**
Chrysene	**ND**	**10.0**	**2.99**	**ng/L**	**30**		**SW846 8270C SIM**
	ND	**10.3**	**3.39**	**ng/L**	**33**	**13**	**SW846 8270C SIM**
Fluorene	**ND**	**10.0**	**5.96**	**ng/L**	**59**		**SW846 8270C SIM**
	ND	**10.3**	**5.56**	**ng/L**	**54**	**7.0**	**SW846 8270C SIM**
Indene	**ND**	**10.0**	**5.66**	**ng/L**	**56**		**SW846 8270C SIM**
	ND	**10.3**	**5.73**	**ng/L**	**55**	**1.2**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**10.0**	**5.65**	**ng/L**	**56**		**SW846 8270C SIM**
	ND	**10.3**	**5.69**	**ng/L**	**55**	**0.63**	**SW846 8270C SIM**
Naphthalene	**ND**	**10.0**	**7.11**	**ng/L**	**71**		**SW846 8270C SIM**
	ND	**10.3**	**6.98**	**ng/L**	**68**	**1.8**	**SW846 8270C SIM**
Quinoline	**ND**	**10.0**	**5.80**	**ng/L**	**58**		**SW846 8270C SIM**
	ND	**10.3**	**5.84**	**ng/L**	**57**	**0.73**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	28 *	(30 - 118)
	28 *	(30 - 118)
Fluorene d-10	50	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	54	(30 - 108)
	56	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

[redacted]

Chain of Custody Record

5/20/03

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 5/19/03	Chain of Custody Number: 150748
Address: 4500 Park Glen Rd Suite 210	Telephone Number (Area Code)/Fax Number: 952 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Bill Gregg	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PAH PPT 5	Special Instructions/ Conditions of Receipt
W133-051903	5/19/03	1155		X			6						X	
W411-051903		1120												
W122-051903		1430												
W412-051903		1545												
W412FB-051903		1535												
W412FBD-051903		1540												
														Chain is for STL Cooler #s 0001, 0005, & 0007

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: A. Tavares	5/19/03	1700	1. Received By:	5/20/03	0830
2. Relinquished By:	Date	Time	2. Received By:	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

[redacted]

STL Denver
4955 Yarrow Street
Arvada, CO 80002

5/20/03

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0700) **DEN (0900)**

Client CITY OF ST. LOUIS PARK UTILITY DIVISION	**Project Manager** SCOTT ANDERSON	**Date** 5-19-03	**Chain of Custody Number** 017826
Address 3752 WOODDALE AVENUE	**Telephone Number (Area Code)/Fax Number** 924-2557 (952) 924-2570	**Lab Number**	**Page** _____ of _____
City ST. LOUIS PARK, MN 55416	**Site Contact** SAME	**Lab Contact**	**Analysis (Attach list if more space is needed)**
Project Name and Location (State) SAME	**Carrier/Waybill Number** FED EX 806824 1274		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	PPE PAHs	Special Instructions/ Conditions of Receipt
SLP3-051903 MS	5-19-03	11:00		X			X					6	X	PPE 5
SLP3D-051903	"	11:15		X			X					6	X	"
SLP3MS-051903 MS	"	11:30		X			X					6	X	"
SLP3MSD-051903	5-19-03	11:45		X			X					6	X	PPE 5

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	5-19-03	1900	1. Received By	5/20/03	0530
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

ENSR

FULL VALIDATION

STL Project # D3E200234 (J)

March 9, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

Full validation was performed on the data for the analyses of six aqueous samples and two field blanks for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on May 19, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL-Denver) in Arvada, CO for analysis. STL processed and reported the results under lot number D3E200234.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

Sample IDs	Sample IDs
W133-051903	W411-051903
W122-051903	W412-051903
W412FB-051903 (field blank)	W412FBD-051903 (field blank duplicate)
SLP3-051903	SLP3D-051903 (field duplicate of SLP3-051903)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/field blanks
- Surrogate spike recoveries
- Internal standard performance
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results

- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were noted.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory met the acceptance criteria of 4°C ± 2°C.

Initial and Continuing Calibrations

The percent relative standard deviations (%RSDs) and the response factors (RFs) of all target analytes were within the QC acceptance criteria in the initial calibration associated with all sample analyses.

The percent differences (%Ds) were within the QC acceptance criteria in the continuing calibration associated with all sample analyses.

Method Blanks/Field Blanks

Target analytes were not detected in the laboratory method blank, the field blank, W412FB-051903, or the field blank duplicate, W412FBD-051903.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses with the exception of those tabulated below.

Sample ID	Surrogate	%R	QC Limits (%R)
W122-051903	Chrysene-d_{12}	12	30 – 118
W411-051903	Chrysene-d_{12}	20	30 – 118
W122-051903	Chrysene-d_{12}	23	30 – 118
W412-051903	Chrysene-d_{12}	13	30 – 118
W412FB-051903	Fluorene-d_{10}	39	41 - 162
W412FBD-051903	Fluorene-d_{10}	36	41 - 162
SLP3D-051903	Chrysene-d_{12}	25	30 – 118
SLP3D-051903	Fluorene-d_{10}	40	41 - 162

Detected and non-detected results reported in sample SLP3D-051913 were qualified as estimated (J/UJ). No action was taken on the results from the other samples since only one of three surrogates were outside of the acceptance limits.

Internal Standard Performance

The internal standard performance was within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample SLP3-051903. All relative percent differences (RPDs) met the acceptance criteria. The following table summarizes the percent recoveries of the spiked target analytes which fell outside the QC acceptance limits. The non-detected result reported for benzo(e)pyrene in the native sample SLP3-051903 and its duplicate SLP3D-051903 were qualified as estimated (UJ) in these samples.

Compound	%R MS/MSD	QC Limits
Benzo(e)pyrene	10/13	30 - 150

Field Duplicate Results

Samples SLP3-051903 and SLP3D-051903 were submitted as the field duplicate samples with this data set. Target analytes were not detected in either sample.

Compound Quantitation

Sample results were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected.

The laboratory's reporting limits were compared with those specified in the QAPP. All laboratory limits were met the required reporting limits with the following exceptions:

Analyte	Laboratory Reporting Limit (ng/L)	QAPP Reporting Limit (ng/L)
Phenanthrene	6.3	4.7
Anthracene	4.2	3.4
Benzo(k)fluoranthene	4.1	3.9

K

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E210221

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

June 19, 2003

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

Check below when supporting documentation is present.

- **Volatile GC/MS**
- **Semivolatile GC/MS**
- **Volatile GC**
- **Semivolatile GC**
- **LC/MS or HPLC**
- **Metals**
- **General Chemistry**
- **Subcontracted Data**

CASE NARRATIVE
D3E210221

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Nine samples were received under chain of custody on May 21, 2003. The samples were received in good condition at temperatures of 2.1°C, 3.4°C, 2.7°C, 3.3°C, 3.9°C and 2.2°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Sample D3E210221-001 demonstrated a recovery of the surrogate chrysene-d12 of 20% that was below control limits. The other two surrogates are in control. This may indicate a low bias in the sample data; however no sample volume was left for reanalysis and no further corrective action was taken.

The MS/MSD performed on sample D3E200234-008 demonstrated recoveries that were below control limits for benzo (e) pyrene. The MSD demonstrated an additional recovery that was below control limits for indene.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT: D3E210221		
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	6
MS Surrogates	3	3
MSD	7	5
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	27	26
Samples and QC Internal Standard Area	39	39
TOTAL	**230**	**226**
% Completeness	**98.3%**	

*A MS/MSD was performed on sample SLP4-052003.

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3E210221					
Sample: SLP4-052003		DUP: SLP4D-052003			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	82	Acenaphthene	92	11.5	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	4.1	NC	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	8.5	Benzo(b)thiophene	9.3	9.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	6.8	Carbazole	7.7	12.4	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	86	2,3-Dihydroindene	95	9.9	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	30	Indene	33	9.5	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	7.6	Pyrene	8.1	6.4	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E210221

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W402-052003 05/20/03 10:45 001				
Benzo(ghi)perylene	2.6 J	6.2	ng/L	SW846 8270C SIM
Benzo(e)pyrene	1.8 J	4.3	ng/L	SW846 8270C SIM
Carbazole	3.5 J	3.8	ng/L	SW846 8270C SIM
2,3-Dihydroindene	6.5	5.0	ng/L	SW846 8270C SIM
Fluoranthene	3.5 J	4.6	ng/L	SW846 8270C SIM
Indene	5.7	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	4.7 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	3.8 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	14	8.6	ng/L	SW846 8270C SIM
Pyrene	12	4.2	ng/L	SW846 8270C SIM
W403-052003 05/20/03 12:45 004				
Benzo(a)anthracene	35	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	0.68 J	4.7	ng/L	SW846 8270C SIM
Benzo(b)thiophene	8.9	5.2	ng/L	SW846 8270C SIM
Carbazole	4.4	3.8	ng/L	SW846 8270C SIM
Chrysene	89	5.6	ng/L	SW846 8270C SIM
2,3-Dihydroindene	5.2	5.0	ng/L	SW846 8270C SIM
Fluorene	3.2 J	4.1	ng/L	SW846 8270C SIM
Indene	6.9	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	4.2 J	5.9	ng/L	SW846 8270C SIM
Naphthalene	14	8.6	ng/L	SW846 8270C SIM
Phenanthrene	14	6.3	ng/L	SW846 8270C SIM
Pyrene	4.7	4.2	ng/L	SW846 8270C SIM
W29-052003 05/20/03 13:00 005				
Acenaphthene	31	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	1.9 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	5.8	5.0	ng/L	SW846 8270C SIM
Fluoranthene	8.2	4.6	ng/L	SW846 8270C SIM
Fluorene	3.9 J	4.1	ng/L	SW846 8270C SIM
Pyrene	11	4.2	ng/L	SW846 8270C SIM
W48-052003 05/20/03 14:45 006				
Acenaphthene	78	5.7	ng/L	SW846 8270C SIM
Acridine	17	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	6.4	5.2	ng/L	SW846 8270C SIM
Dibenzothiophene	5.6	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	9.2	5.0	ng/L	SW846 8270C SIM
Indene	15	4.7	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3E210221

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W48-052003 05/20/03 14:45 006				
Pyrene	4.0 J	4.2	ng/L	SW846 8270C SIM
SLP4-052003 05/20/03 12:00 008				
Acenaphthene	82	5.7	ng/L	SW846 8270C SIM
Benzo(b)thiophene	8.5	5.2	ng/L	SW846 8270C SIM
Carbazole	6.8	3.8	ng/L	SW846 8270C SIM
2,3-Dihydroindene	86	5.0	ng/L	SW846 8270C SIM
Indene	30	4.7	ng/L	SW846 8270C SIM
Pyrene	7.6	4.2	ng/L	SW846 8270C SIM
SLP4D-052003 05/20/03 12:10 009				
Acenaphthene	92	5.7	ng/L	SW846 8270C SIM
Acridine	4.1 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	9.3	5.2	ng/L	SW846 8270C SIM
Carbazole	7.7	3.8	ng/L	SW846 8270C SIM
2,3-Dihydroindene	95	5.0	ng/L	SW846 8270C SIM
Indene	33	4.7	ng/L	SW846 8270C SIM
Pyrene	8.1	4.2	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3E210221

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E210221

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E210221

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FN5NG	001	W402-052003	05/20/03	10:45
FN5NR	002	W402FB-052003	05/20/03	10:35
FN5NT	003	W402FBD-052003	05/20/03	10:40
FN5NW	004	W403-052003	05/20/03	12:45
FN5N2	005	W29-052003	05/20/03	13:00
FN5N4	006	W48-052003	05/20/03	14:45
FN5N5	007	W70-052003	05/20/03	16:15
FN5N6	008	SLP4-052003	05/20/03	12:00
FN5N7	009	SLP4D-052003	05/20/03	12:10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W402-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-001	Work Order #...: FN5NG1AA	Matrix.....: WG	
Date Sampled...: 05/20/03	Date Received..: 05/21/03		
Prep Date.....: 05/26/03	Analysis Date..: 06/17/03		
Prep Batch #...: 3146097	Analysis Time..: 14:29		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**2.6 J**	**6.2**	**ng/L**
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	**1.8 J**	**4.3**	**ng/L**
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	**3.5 J**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**6.5**	**5.0**	**ng/L**
Fluoranthene	**3.5 J**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	**5.7**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**4.7 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**3.8 J**	**5.6**	**ng/L**
Naphthalene	**14**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**12**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20 *	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	51	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W402FB-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-002	**Work Order #...:** FN5NR1AA	**Matrix.....:** WG
Date Sampled...: 05/20/03	**Date Received..:** 05/21/03	
Prep Date.....: 05/26/03	**Analysis Date..:** 06/17/03	
Prep Batch #...: 3146097	**Analysis Time..:** 15:07	
Dilution Factor: 1		
	Method.....: SW846 8270C SIM	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	57	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	49	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: W402FBD-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-003 **Work Order #...:** FN5NT1AA **Matrix.....:** WG
Date Sampled...: 05/20/03 **Date Received..:** 05/21/03
Prep Date.....: 05/26/03 **Analysis Date..:** 06/17/03
Prep Batch #...: 3146097 **Analysis Time..:** 15:46
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 118)
Fluorene d-10	43	(41 - 162)
Naphthalene-d8	48	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: W403-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-004	**Work Order #...:** FN5NW1AA	**Matrix.....:** WG	
Date Sampled...: 05/20/03	**Date Received..:** 05/21/03		
Prep Date.....: 05/26/03	**Analysis Date..:** 06/17/03		
Prep Batch #...: 3146097	**Analysis Time..:** 16:24		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	**35**	**4.3**	**ng/L**
Benzo(b)fluoranthene	**0.68 J**	**4.7**	**ng/L**
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**8.9**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**4.4**	**3.8**	**ng/L**
Chrysene	**89**	**5.6**	**ng/L**
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**5.2**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	**3.2 J**	**4.1**	**ng/L**
Indene	**6.9**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**4.2 J**	**5.9**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**14**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**14**	**6.3**	**ng/L**
Pyrene	**4.7**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(30 - 118)
Fluorene d-10	43	(41 - 162)
Naphthalene-d8	49	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W29-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-005 Work Order #...: FN5N21AA Matrix.....: WG
Date Sampled...: 05/20/03 Date Received..: 05/21/03
Prep Date.....: 05/26/03 Analysis Date..: 06/17/03
Prep Batch #...: 3146097 Analysis Time..: 17:02
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**31**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	**1.9 J**	**4.1**	**ng/L**
2,3-Dihydroindene	**5.8**	**5.0**	**ng/L**
Fluoranthene	**8.2**	**4.6**	**ng/L**
Fluorene	**3.9 J**	**4.1**	**ng/L**
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**11**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	30	(30 - 118)
Fluorene d-10	57	(41 - 162)
Naphthalene-d8	59	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W48-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-006 Work Order #...: FN5N41AA Matrix.....: WG
Date Sampled...: 05/20/03 Date Received..: 05/21/03
Prep Date.....: 05/26/03 Analysis Date..: 06/17/03
Prep Batch #...: 3146097 Analysis Time..: 17:40
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**78**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**17**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**6.4**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	**5.6**	**4.1**	**ng/L**
2,3-Dihydroindene	**9.2**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**15**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**4.0 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(30 - 118)
Fluorene d-10	112	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W70-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-007 **Work Order #...:** FN5N51AA **Matrix.....:** WG
Date Sampled...: 05/20/03 **Date Received..:** 05/21/03
Prep Date.....: 05/26/03 **Analysis Date..:** 06/17/03
Prep Batch #...: 3146097 **Analysis Time..:** 18:18
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	33	(30 - 118)
Fluorene d-10	52	(41 - 162)
Naphthalene-d8	56	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: SLP4-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-008 Work Order #...: FN5N61AA Matrix.....: WG
Date Sampled...: 05/20/03 Date Received..: 05/21/03
Prep Date.....: 05/26/03 Analysis Date..: 06/17/03
Prep Batch #...: 3146097 Analysis Time..: 18:56
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**82**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**8.5**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**6.8**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**86**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**30**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**7.6**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	37	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	52	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: SLP4D-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-009 Work Order #...: FN5N71AA Matrix.....: WG
Date Sampled...: 05/20/03 Date Received..: 05/21/03
Prep Date.....: 05/26/03 Analysis Date..: 06/17/03
Prep Batch #...: 3146097 Analysis Time..: 20:50
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**92**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**4.1 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**9.3**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**7.7**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**95**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**33**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**8.1**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	61	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D3E210221

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3146097	3146005
002	WG	SW846 8270C SIM		3146097	3146005
003	WG	SW846 8270C SIM		3146097	3146005
004	WG	SW846 8270C SIM		3146097	3146005
005	WG	SW846 8270C SIM		3146097	3146005
006	WG	SW846 8270C SIM		3146097	3146005
007	WG	SW846 8270C SIM		3146097	3146005
008	WG	SW846 8270C SIM		3146097	3146005
009	WG	SW846 8270C SIM		3146097	3146005

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E210221 **Work Order #...:** FPEPL1AA **Matrix.....:** WATER
MB Lot-Sample #: D3E260000-097

Prep Date.....: 05/26/03 **Analysis Time..:** 11:17
Analysis Date..: 06/17/03 **Prep Batch #...:** 3146097
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
hrysene	ND	5.6	ng/L	SW846 8270C SIM
ibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	67	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	66	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E210221 **Work Order #...:** FPEPL1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E260000-097
Prep Date.....: 05/26/03 **Analysis Date..:** 06/17/03
Prep Batch #...: 3146097 **Analysis Time..:** 11:56
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**71**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**56**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**59**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**55**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**57**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**65**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**67**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E210221 **Work Order #...:** FPEPL1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3E260000-097
Prep Date.....: 05/26/03 **Analysis Date..:** 06/17/03
Prep Batch #...: 3146097 **Analysis Time..:** 11:56
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**7.07**	**ng/L**	**71**	**SW846 8270C S**
Chrysene	**10.0**	**5.59**	**ng/L**	**56**	**SW846 8270C S**
Fluorene	**10.0**	**5.90**	**ng/L**	**59**	**SW846 8270C S**
Indene	**10.0**	**5.53**	**ng/L**	**55**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**5.66**	**ng/L**	**57**	**SW846 8270C S**
Naphthalene	**10.0**	**6.52**	**ng/L**	**65**	**SW846 8270C S**
Quinoline	**10.0**	**6.70**	**ng/L**	**67**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E210221 **Work Order #...:** FN5N61AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E210221-008 FN5N61AD-MSD
Date Sampled...: 05/20/03 **Date Received..:** 05/21/03
Prep Date.....: 05/26/03 **Analysis Date..:** 06/17/03
Prep Batch #...: 3146097 **Analysis Time..:** 19:34
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**26 a**	**(30 - 150)**			**SW846 8270C SIM**
	28 a	**(30 - 150)**	**6.6**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**33**	**(30 - 132)**			**SW846 8270C SIM**
	34	**(30 - 132)**	**0.09**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**62**	**(30 - 132)**			**SW846 8270C SIM**
	61	**(30 - 132)**	**3.6**	**(0-50)**	**SW846 8270C SIM**
Indene	**58**	**(30 - 150)**			**SW846 8270C SIM**
	25 a	**(30 - 150)**	**9.4**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**56**	**(30 - 150)**			**SW846 8270C SIM**
	54	**(30 - 150)**	**4.4**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**79**	**(30 - 150)**			**SW846 8270C SIM**
	74	**(30 - 150)**	**8.0**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**64**	**(30 - 150)**			**SW846 8270C SIM**
	65	**(30 - 150)**	**0.68**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	35	(30 - 118)
	32	(30 - 118)
Fluorene d-10	50	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	54	(30 - 108)
	48	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...:	D3E210221	**Work Order #...:**	FN5N61AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3E210221-008		FN5N61AD-MSD		
Date Sampled...:	05/20/03	**Date Received..:**	05/21/03		
Prep Date.....:	05/26/03	**Analysis Date..:**	06/17/03		
Prep Batch #...:	3146097	**Analysis Time..:**	19:34		
Dilution Factor:	1				

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**9.73**	**2.53**	**ng/L**	**26 a**		**SW846 8270C SIM**
	ND	**9.65**	**2.70**	**ng/L**	**28 a**	**6.6**	**SW846 8270C SIM**
Chrysene	**ND**	**9.73**	**3.26**	**ng/L**	**33**		**SW846 8270C SIM**
	ND	**9.65**	**3.26**	**ng/L**	**34**	**0.09**	**SW846 8270C SIM**
Fluorene	**ND**	**9.73**	**6.08**	**ng/L**	**62**		**SW846 8270C SIM**
	ND	**9.65**	**5.86**	**ng/L**	**61**	**3.6**	**SW846 8270C SIM**
Indene	**30**	**9.73**	**35.1**	**ng/L**	**58**		**SW846 8270C SIM**
	30	**9.65**	**32.0**	**ng/L**	**25 a**	**9.4**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**9.73**	**5.48**	**ng/L**	**56**		**SW846 8270C SIM**
	ND	**9.65**	**5.24**	**ng/L**	**54**	**4.4**	**SW846 8270C SIM**
Naphthalene	**ND**	**9.73**	**7.72**	**ng/L**	**79**		**SW846 8270C SIM**
	ND	**9.65**	**7.13**	**ng/L**	**74**	**8.0**	**SW846 8270C SIM**
Quinoline	**ND**	**9.73**	**6.23**	**ng/L**	**64**		**SW846 8270C SIM**
	ND	**9.65**	**6.27**	**ng/L**	**65**	**0.68**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	35	(30 - 118)
	32	(30 - 118)
Fluorene d-10	50	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	54	(30 - 108)
	48	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

5/21/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	5/20/03	150746
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
3752 Wooddale Ave	(952) 924 2557		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416	Bill Gregg	Brian Stringer	
Project Name and Location (State)	**Carrier/Waybill Number**		
Reilly			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: PAH PPT-5	Special Instructions/ Conditions of Receipt
W402-052003	5/20/03	1045		X			6						X	
W402FB-052003		1035												
W402FBD-052003		1040												
W403-052003		1245												
W29-052003		1300												
W48-052003		1445												
W70-052003		1615												
														Chain is for coolers 0008, 0011, 0012, 0014

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	[signature]	5/20/03	1700	[signature]	5/21/03	0830
2.	[signature]			[signature]		
3.						

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

[redacted] Chain of Custody Record

d1, 3, 4
5/21/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION Address: 3752 WOODDALE AVENUE City: ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Date: 5-20-03	Chain of Custody Number: 150736
Project Name and Location (State): SAME	Site Contact: SAME Lab Contact: Carrier/Waybill Number: FED EX 809828241285	Lab Number:	Page ____ of ____
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	$ZnAc/NaOH$		Analysis (Attach list if more space is needed): PPL PAHs	Special Instructions/ Conditions of Receipt
SLP4-052003	5-20-03	1210		X			X						6	X	PPL PAH 5
SLP4D-052003	5-20-03	1210		X			X						6	X	PPL 5
SLP4MS-052003	5-20-03	1220		X			X						6	X	PPL 5
SLP4MSD-052003	5-20-03	1230		X			X						6	X	PPL 5

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: SMJ	5-20-03	1400	1. Received By:	5/21/03	0830
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample: PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E210221 (K)

July 2, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of nine aqueous samples for parts per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on May 20, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E210221.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W402-052003
W402FB-052003
W402FBD-052003
W403-052003
W29-052003
W48-052003
W70-052003
SLP4-052003
SLP4D-052003

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results

- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory ranged from 2.1°C to 3.9°C. The cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

The method blank for this data package was 3146097. Target analytes were not detected in the laboratory method blank. In addition to the method blanks, a field blank and field blank duplicate were also submitted with this data set. Samples W402FB-052003 and W402FBD-052003 did not have any of the target analytes detected.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses except for sample W402-052003. Recoveries for chrysene-d12 were outside the range of 30-118%. The other two surrogates were in control for this sample.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed for this data set. Sample SLP4-052003 had percent recoveries and relative percent differences (RPDs) within the acceptable range except for the compounds benzo(e)pyrene and indene. The percent recoveries for benzo(e)pyrene was 26% and 28% for the MS/MSD and fell outside the range of 30-150. The RPD was within an acceptable range. Indene was found at a concentration of 25% in the MSD.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	26/28	ok	30-150/0-50
Indene	ok/25	ok	30-150/0-50

Field Duplicate Results

A duplicate sample was submitted for SLP4-052003 with this data set. A total of six out of 31 target analytes were detected in the samples. The percent recoveries and RPDs were within range for all analytes. It should be noted that one compound was detected in the duplicate sample, but was not detected in the primary sample. The data are acceptable because the positive result was less than 4x the reporting limit for that compound (acridine).

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

L

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E280223

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

June 26, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Radiochemistry	
• Subcontracted Data	

CASE NARRATIVE
D3E280223

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Six samples were received under chain of custody on May 28, 2003. The samples were received in good condition at temperatures of 4.7°C, 4.6°C, 4.9°C, and 4.2°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3E280223-002, 005, and 006 demonstrated recoveries of the surrogate chrysene-d12 below control limits at 22%, 25%, and 26% respectively. The other two surrogates are in control. This may indicate a low bias in the sample data; however no sample volume remains for reanalysis and no further corrective action was taken. Matrix effects are suspected, as demonstrated by low surrogate recoveries in sample 001 and the MS/MSD performed on sample 001.

The MS/MSD performed on sample D3E280223-001 demonstrated recoveries that were below control limits for benzo(e)pyrene and quinoline. Additionally, the surrogate chrysene-d12 was below control limits in the MSD.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT: D3E280223		
ANALYSIS:	SW846-8270C SIM	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	5
MS Surrogates	3	3
MSD	7	5
MSD Surrogates	3	2
MS/MSD RPD	7	6
Sample/Dup. RPD	31	31
Sample Surrogates	18	15
Samples and QC Internal Standard Area	30	30
TOTAL	**212**	**203**
% Completeness	**95.8%**	

*A MS/MSD was performed on sample GAC-SLP4T-052703

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3E280223					
Sample: GAC-SLP4T-052703		DUP: GAC-SLP4TD-052703			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E280223

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
GAC-SLP10T-052703 05/27/03 12:00 005				
Acenaphthene	9.6	5.7	ng/L	SW846 8270C SIM
2,3-Dihydroindene	5.7	5.0	ng/L	SW846 8270C SIM
PCJ-SLP6-052703 05/27/03 12:15 006				
Acenaphthene	74	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	12	4.8	ng/L	SW846 8270C SIM
Acridine	5.3 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	2.6 J	5.2	ng/L	SW846 8270C SIM
Dibenzothiophene	2.1 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	61	5.0	ng/L	SW846 8270C SIM
Fluorene	8.4	4.1	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3E280223

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E280223

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E280223

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FPHHV	001	GAC-SLP4T-052703	05/27/03	12:40
FPHH0	002	GAC-SLP4TD-052703	05/27/03	12:50
FPHH1	003	GAC-SLP4TFB-052703	05/27/03	13:20
FPHH2	004	GAC-SLP4TFBD-052703	05/27/03	12:30
FPHH3	005	GAC-SLP10T-052703	05/27/03	12:00
FPHH4	006	PCJ-SLP6-052703	05/27/03	12:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-001 **Work Order #...:** FPHHV1AA **Matrix.....:** WG
Date Sampled...: 05/27/03 **Date Received..:** 05/28/03
Prep Date.....: 06/02/03 **Analysis Date..:** 06/24/03
Prep Batch #...: 3153163 **Analysis Time..:** 21:21
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	59	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TD-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-002 **Work Order #...:** FPHH01AA **Matrix.....:** WG
Date Sampled...: 05/27/03 **Date Received..:** 05/28/03
Prep Date.....: 06/02/03 **Analysis Date..:** 06/24/03
Prep Batch #...: 3153163 **Analysis Time..:** 23:15
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	22 *	(30 - 118)
Fluorene d-10	49	(41 - 162)
Naphthalene-d8	61	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFB-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-003 Work Order #...: FPHH11AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 23:53
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	55	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFBD-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-004 Work Order #...: FPHH21AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/25/03
Prep Batch #...: 3153163 Analysis Time..: 00:31
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(30 - 118)
Fluorene d-10	41	(41 - 162)
Naphthalene-d8	54	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-005 Work Order #...: FPHH31AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/25/03
Prep Batch #...: 3153163 Analysis Time..: 01:09
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**9.6**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**5.7**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	45	(41 - 162)
Naphthalene-d8	62	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP6-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-006 Work Order #...: FPHH41AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/25/03
Prep Batch #...: 3153163 Analysis Time..: 01:47
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**74**	**5.7**	**ng/L**
Acenaphthylene	**12**	**4.8**	**ng/L**
Acridine	**5.3 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**2.6 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	**2.1 J**	**4.1**	**ng/L**
2,3-Dihydroindene	**61**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	**8.4**	**4.1**	**ng/L**
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	26 *	(30 - 118)
Fluorene d-10	59	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D3E280223

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3153163	3153051
002	WG	SW846 8270C SIM		3153163	3153051
003	WG	SW846 8270C SIM		3153163	3153051
004	WG	SW846 8270C SIM		3153163	3153051
005	WG	SW846 8270C SIM		3153163	3153051
006	WG	SW846 8270C SIM		3153163	3153051

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 **Work Order #...:** FPQKC1AA **Matrix.....:** WATER
MB Lot-Sample #: D3F020000-163

Prep Date.....: 06/02/03 **Analysis Time..:** 20:07
Analysis Date..: 06/24/03 **Prep Batch #...:** 3153163
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	59	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	63	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 **Work Order #...:** FPQKC1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3F020000-163
Prep Date.....: 06/02/03 **Analysis Date..:** 06/24/03
Prep Batch #...: 3153163 **Analysis Time..:** 20:44
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**61**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**56**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**57**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**55**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**57**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**63**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**55**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	57	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 **Work Order #...:** FPQKC1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3F020000-163
Prep Date.....: 06/02/03 **Analysis Date..:** 06/24/03
Prep Batch #...: 3153163 **Analysis Time..:** 20:44
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**6.14**	**ng/L**	**61**	**SW846 8270C S**
Chrysene	**10.0**	**5.58**	**ng/L**	**56**	**SW846 8270C S**
Fluorene	**10.0**	**5.71**	**ng/L**	**57**	**SW846 8270C S**
Indene	**10.0**	**5.55**	**ng/L**	**55**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**5.70**	**ng/L**	**57**	**SW846 8270C S**
Naphthalene	**10.0**	**6.35**	**ng/L**	**63**	**SW846 8270C S**
Quinoline	**10.0**	**5.46**	**ng/L**	**55**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	57	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 **Work Order #...:** FPHHV1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E280223-001 FPHHV1AD-MSD
Date Sampled...: 05/27/03 **Date Received..:** 05/28/03
Prep Date.....: 06/02/03 **Analysis Date..:** 06/24/03
Prep Batch #...: 3153163 **Analysis Time..:** 21:59
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a	**(30 - 150)**	**0.0**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**32**	**(30 - 132)**			**SW846 8270C SIM**
	30	**(30 - 132)**	**20**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**55**	**(30 - 132)**			**SW846 8270C SIM**
	65	**(30 - 132)**	**4.0**	**(0-50)**	**SW846 8270C SIM**
Indene	**53**	**(30 - 150)**			**SW846 8270C SIM**
	67	**(30 - 150)**	**11**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**56**	**(30 - 150)**			**SW846 8270C SIM**
	70	**(30 - 150)**	**9.9**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**67**	**(30 - 150)**			**SW846 8270C SIM**
	89	**(30 - 150)**	**16**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**28 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a,p	**(30 - 150)**	**200**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(30 - 118)
	29 *	(30 - 118)
Fluorene d-10	43	(41 - 162)
	50	(41 - 162)
Naphthalene-d8	56	(30 - 108)
	69	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 **Work Order #...:** FPHHV1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3E280223-001 FPHHV1AD-MSD
Date Sampled...: 05/27/03 **Date Received..:** 05/28/03
Prep Date.....: 06/02/03 **Analysis Date..:** 06/24/03
Prep Batch #...: 3153163 **Analysis Time..:** 21:59
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	ND	10.7	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.55	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM
Chrysene	ND	10.7	3.48	ng/L	32		SW846 8270C SIM
	ND	9.55	2.85	ng/L	30	20	SW846 8270C SIM
Fluorene	ND	10.7	5.92	ng/L	55		SW846 8270C SIM
	ND	9.55	6.16	ng/L	65	4.0	SW846 8270C SIM
Indene	ND	10.7	5.74	ng/L	53		SW846 8270C SIM
	ND	9.55	6.40	ng/L	67	11	SW846 8270C SIM
2-Methylnaphthalene	ND	10.7	6.05	ng/L	56		SW846 8270C SIM
	ND	9.55	6.68	ng/L	70	9.9	SW846 8270C SIM
Naphthalene	ND	10.7	7.22	ng/L	67		SW846 8270C SIM
	ND	9.55	8.46	ng/L	89	16	SW846 8270C SIM
Quinoline	ND	10.7		ng/L	28 a		SW846 8270C SIM
	ND	9.55	0.0	ng/L	0.0	200	SW846 8270C SIM

Qualifiers: a,p

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(30 - 118)
	29 *	(30 - 118)
Fluorene d-10	43	(41 - 162)
	50	(41 - 162)
Naphthalene-d8	56	(30 - 108)
	69	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

Chain of Custody Record

4.7, 4.6, 4.9, 4.2
MB
5/28/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Scott Anderson	5-27-03	150737
Address / City	Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Lab Number	Page ____ of ____
	Site Contact: SAME	Lab Contact	Analysis (Attach list if more space is needed)
Project Name and Location (State): SAME	Carrier/Waybill Number: FED EX 806824129 6		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	# of Containers	PPL PAHs	Special Instructions/ Conditions of Receipt
SLP4T-052703 OW 0004	5-27-03	12:40		X			X						6	X	PPL 5
SLP4TD-052703		12:50		X			X						6	X	
SLP4TMS-052703 EB 0015		1:00		X			X						6	X	
SLP4TMSD-052703		1:10		X			X						6	X	
SLP4TFB-052703 CHL 0014		1:20		X			X						6	X	
SLP4TFDD-052703		12:30		X			X						6	X	
SLP10T-052703 OW 0007		12:00		X			X						6	X	
PGW-SLPG-052703	5-27-03	12:15		X			X						6	X	PPL 5

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	5-27-03	1400	1. Received By	5/28/03	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3E280223 (L)

July 2, 2003

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of six aqueous samples for parts per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on May 27, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3E280223.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

GAC-SLP4T-052703
GAC-SLP4TD-052703
GAC-SLP4TFB-052703
GAC-SLP4TFBD-052703
GAC-SLP10T-052703
PCJ-SLP6-052703

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory ranged from 4.2°C to 4.9°C. The cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

The method blank for this data package was batch 3153163. Target analytes were not detected in the laboratory method blank. In addition to the method blanks, a field blank and field blank duplicate were also submitted with this data set. Samples GAC-SLP4TFB-052703 and GAC-SLP4TFBD-052703 did not have any of the target analytes detected.

Surrogate Spike Recoveries

The percent recoveries of the chrysene-d12 surrogates were outside the QC acceptance criteria in three sample analyses. GAC-SLP4TD-052703, GAC-SLP10T-052703, and PCJ-SLP6-052703 had recoveries of 22%, 25%, and 26% respectively for chrysene-d12. They were outside the range of 30-118. The other surrogates were in control for all samples.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed for this data set. Sample D3E280223-001 had all percent recoveries and relative percent differences (RPDs) within the acceptable range except for the compounds benzo(e)pyrene and quinoline. The percent recoveries for benzo(e)pyrene was 0% and 0% for the MS/MSD and fell outside the range of 30-150. Quinoline had a 28% and 0% recovery for the MS/MSD. The RPDs for these compounds did not apply due to the 0% recovery. All other compounds had percent recoveries and RPDs within an acceptable range. The surrogate chrysene-d12 has a low recovery in the MSD sample at 29%.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	0/0	NA	30-150/0-50
Quinoline	28/0	NA	30-150/0-50

Field Duplicate Results

A duplicate sample was submitted for SLP4T-052703 with this data set. No target analytes were detected in the samples.

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

M

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3F030220

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

July 2, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Radiochemistry	
• Subcontracted Data	

CASE NARRATIVE
D3F030220

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Six samples were received under chain of custody on June 3, 2003. The samples were received in good condition at temperatures of 2.7°C, 2.4°C, 5.3°C, and 5.1°C.

Two of the six bottles for sample W410-060203 and four of the six bottles for sample W410D-060203 were received broken. There was sufficient volume remaining to perform the required 4-liter analysis for sample W410-060203. The client was contacted and requested that two sample bottles designated for MS/MSD for this sample be used to perform the required 4-liter analysis for sample W410D-060203.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Sample D3F030220-003 demonstrated recoveries of the surrogates chrysene-d12 and fluorene d-10 below control limits at 15% and 39%, respectively. The third surrogate is in control. This may indicate a low bias in the sample data; however no sample volume remains for reanalysis and no further corrective action was taken.

Samples D3F030220-001, 002, and 006 were analyzed undiluted and then at a dilution due to high concentrations of target analytes in the samples. Analytes whose concentrations did not exceed the calibration range are reported from the undiluted analyses, while those compounds that required dilution are only reported from the diluted analyses. Fluorene and indene are reported in the undiluted analyses of sample 001 as "E" flagged to provide parent sample data in order to calculate recoveries for the MS/MSD performed on this sample. Surrogate recoveries were not reported for the dilutions.

The MS/MSD performed on sample D3F030220-001 demonstrated recoveries that were below control limits for benzo(e)pyrene and indene. The sample concentration was greater than four times the spike level for benzo(e)pyrene.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3F030220	
ANALYSIS:	SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
MS	7	5
MS Surrogates	3	3
MSD	7	6
MSD Surrogates	3	3
MS/MSD RPD	7	7
FB/FBD	62	62
Sample/Dup. RPD	31	31
Sample Surrogates	18	16
Samples and QC Internal Standard Area	30	30
TOTAL	**212**	**207**
% Completeness	**97.6%**	

*A MS/MSD was performed on sample W410-060203

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3F030220					
Sample: W410-060203		DUP: W410D-060203			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	340	Acenaphthene	330	3.0	
Acenaphthylene	91	Acenaphthylene	84	8.0	
Acridine	8.2	Acridine	7.2	13.0	
Anthracene	16	Anthracene	15	6.5	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0	
2,3-Benzofuran	9.2	2,3-Benzofuran	ND	NC	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0	
Benzo(b)thiophene	470	Benzo(b)thiophene	450	4.3	
Biphenyl	110	Biphenyl	100	9.5	
Carbazole	160	Carbazole	150	6.5	
Chrysene	ND	Chrysene	ND	0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0	
Dibenzofuran	140	Dibenzofuran	140	0.0	
Dibenzothiophene	13	Dibenzothiophene	12	8.0	
2,3-Dihydroindene	1200	2,3-Dihydroindene	1100	8.7	
Fluoranthene	9.7	Fluoranthene	8.4	14.4	
Fluorene	160	Fluorene	140	13.3	
Indene	960	Indene	900	6.5	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0	
Indole	ND	Indole	ND	0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0	
1-Methylnaphthalene	540	1-Methylnaphthalene	510	5.7	
Naphthalene	52	Naphthalene	46	12.2	
Perylene	ND	Perylene	ND	0	
Phenanthrene	160	Phenanthrene	ND	0	
Pyrene	5.1	Pyrene	4.6	10.3	
Quinoline	8.4	Quinoline	7.7	8.7	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3F030220

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W410-060203 06/02/03 12:00 001				
Acenaphthene	340	140	ng/L	SW846 8270C SIM
Acenaphthylene	91	4.8	ng/L	SW846 8270C SIM
Acridine	8.2	6.2	ng/L	SW846 8270C SIM
Anthracene	16	4.2	ng/L	SW846 8270C SIM
2,3-Benzofuran	9.2	5.4	ng/L	SW846 8270C SIM
Benzo(b)thiophene	470	130	ng/L	SW846 8270C SIM
Biphenyl	110	5.6	ng/L	SW846 8270C SIM
Carbazole	160	95	ng/L	SW846 8270C SIM
Dibenzofuran	140	140	ng/L	SW846 8270C SIM
Dibenzothiophene	13	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	1200	120	ng/L	SW846 8270C SIM
Fluoranthene	9.7	4.6	ng/L	SW846 8270C SIM
Fluorene	160 E	4.1	ng/L	SW846 8270C SIM
Fluorene	160	100	ng/L	SW846 8270C SIM
Indene	1100 E	4.7	ng/L	SW846 8270C SIM
Indene	960	120	ng/L	SW846 8270C SIM
1-Methylnaphthalene	540	140	ng/L	SW846 8270C SIM
Naphthalene	52	8.6	ng/L	SW846 8270C SIM
Phenanthrene	160	160	ng/L	SW846 8270C SIM
Pyrene	5.1	4.2	ng/L	SW846 8270C SIM
Quinoline	8.4 J	9.0	ng/L	SW846 8270C SIM
W410D-060203 06/02/03 12:10 002				
Acenaphthene	330	140	ng/L	SW846 8270C SIM
Acenaphthylene	84	4.8	ng/L	SW846 8270C SIM
Acridine	7.2	6.2	ng/L	SW846 8270C SIM
Anthracene	15	4.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	450	130	ng/L	SW846 8270C SIM
Biphenyl	100	5.6	ng/L	SW846 8270C SIM
Carbazole	150	95	ng/L	SW846 8270C SIM
Dibenzofuran	140	140	ng/L	SW846 8270C SIM
Dibenzothiophene	12	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	1100	120	ng/L	SW846 8270C SIM
Fluoranthene	8.4	4.6	ng/L	SW846 8270C SIM
Fluorene	140	100	ng/L	SW846 8270C SIM
Indene	900	120	ng/L	SW846 8270C SIM
1-Methylnaphthalene	510	140	ng/L	SW846 8270C SIM
Naphthalene	46	8.6	ng/L	SW846 8270C SIM
Pyrene	4.6	4.2	ng/L	SW846 8270C SIM
Quinoline	7.7 J	9.0	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3F030220

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W33-060203 06/02/03 11:45 003				
Acenaphthene	11	5.7	ng/L	SW846 8270C SIM
Acridine	2.4 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	16	4.3	ng/L	SW846 8270C SIM
Benzo(e)pyrene	1.1 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	13	5.2	ng/L	SW846 8270C SIM
Carbazole	11	3.8	ng/L	SW846 8270C SIM
Chrysene	50	5.6	ng/L	SW846 8270C SIM
2,3-Dihydroindene	39	5.0	ng/L	SW846 8270C SIM
Fluorene	2.4 J	4.1	ng/L	SW846 8270C SIM
Indene	6.3	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	4.1 J	5.9	ng/L	SW846 8270C SIM
Naphthalene	8.0 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	12	6.3	ng/L	SW846 8270C SIM
Pyrene	4.4	4.2	ng/L	SW846 8270C SIM
W24-060203 06/02/03 15:00 006				
Acenaphthene	21	5.7	ng/L	SW846 8270C SIM
Acridine	4.0 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	4.0 J	5.2	ng/L	SW846 8270C SIM
Dibenzofuran	8.3	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	6.1	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	280	20	ng/L	SW846 8270C SIM
Indene	8.0	4.7	ng/L	SW846 8270C SIM
Pyrene	4.0 J	4.2	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3F030220

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3F030220

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3F030220

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FPT6H	001	W410-060203	06/02/03	12:00
FPT6M	002	W410D-060203	06/02/03	12:10
FPT6R	003	W33-060203	06/02/03	11:45
FPT6V	004	W33FB-060203	06/02/03	11:20
FPT6X	005	W33FBD-060203	06/02/03	11:25
FPT62	006	W24-060203	06/02/03	15:00

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W410-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-001 Work Order #...: FPT6H1AA Matrix.....: WG
Date Sampled...: 06/02/03 Date Received..: 06/03/03
Prep Date.....: 06/07/03 Analysis Date..: 06/25/03
Prep Batch #...: 3158136 Analysis Time..: 12:46
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	91	4.8	ng/L
Acridine	8.2	6.2	ng/L
Anthracene	16	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	9.2	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Biphenyl	110	5.6	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzothiophene	13	4.1	ng/L
Fluoranthene	9.7	4.6	ng/L
Fluorene	160 E	4.1	ng/L
Indene	1100 E	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
Naphthalene	52	8.6	ng/L
Perylene	ND	3.3	ng/L
Pyrene	5.1	4.2	ng/L
Quinoline	8.4 J	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	43	(30 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	63	(30 - 108)

NOTE(S):

E Estimated result. Result concentration exceeds the calibration range.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W410-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-001 Work Order #...: FPT6H2AA Matrix.....: WG
Date Sampled...: 06/02/03 Date Received..: 06/03/03
Prep Date.....: 06/07/03 Analysis Date..: 06/25/03
Prep Batch #...: 3158136 Analysis Time..: 17:29
Dilution Factor: 25
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	340	140	ng/L
Benzo(b)thiophene	470	130	ng/L
Carbazole	160	95	ng/L
Dibenzofuran	140	140	ng/L
2,3-Dihydroindene	1200	120	ng/L
Fluorene	160	100	ng/L
Indene	960	120	ng/L
1-Methylnaphthalene	540	140	ng/L
Phenanthrene	160	160	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W410D-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-002	**Work Order #...:** FPT6M1AA	**Matrix.....:** WG	
Date Sampled...: 06/02/03	**Date Received..:** 06/03/03		
Prep Date.....: 06/07/03	**Analysis Date..:** 06/25/03		
Prep Batch #...: 3158136	**Analysis Time..:** 18:40		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**84**	**4.8**	**ng/L**
Acridine	**7.2**	**6.2**	**ng/L**
Anthracene	**15**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Biphenyl	**100**	**5.6**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
ibenzothiophene	**12**	**4.1**	**ng/L**
fluoranthene	**8.4**	**4.6**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
Naphthalene	**46**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Pyrene	**4.6**	**4.2**	**ng/L**
Quinoline	**7.7 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	30	(30 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	62	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W410D-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-002 Work Order #...: FPT6M2AA Matrix.....: WG
Date Sampled...: 06/02/03 Date Received..: 06/03/03
Prep Date.....: 06/07/03 Analysis Date..: 06/25/03
Prep Batch #...: 3158136 Analysis Time..: 18:04
Dilution Factor: 25
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	330	140	ng/L
Benzo(b)thiophene	450	130	ng/L
Carbazole	150	95	ng/L
Dibenzofuran	140	140	ng/L
2,3-Dihydroindene	1100	120	ng/L
Fluorene	140	100	ng/L
Indene	900	120	ng/L
1-Methylnaphthalene	510	140	ng/L
Phenanthrene	ND	160	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W33-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-003 Work Order #...: FPT6R1AA Matrix.....: WG
Date Sampled...: 06/02/03 Date Received..: 06/03/03
Prep Date.....: 06/07/03 Analysis Date..: 06/25/03
Prep Batch #...: 3158136 Analysis Time..: 15:08
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**11**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**2.4 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	**16**	**4.3**	**ng/L**
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	**1.1 J**	**4.3**	**ng/L**
Benzo(b)thiophene	**13**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**11**	**3.8**	**ng/L**
Chrysene	**50**	**5.6**	**ng/L**
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**39**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	**2.4 J**	**4.1**	**ng/L**
Indene	**6.3**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**4.1 J**	**5.9**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**8.0 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**12**	**6.3**	**ng/L**
Pyrene	**4.4**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	15 *	(30 - 118)
Fluorene d-10	39 *	(41 - 162)
Naphthalene-d8	43	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W33FB-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-004	**Work Order #...:** FPT6V1AA	**Matrix.....:** WG	
Date Sampled...: 06/02/03	**Date Received..:** 06/03/03		
Prep Date.....: 06/07/03	**Analysis Date..:** 06/25/03		
Prep Batch #...: 3158136	**Analysis Time..:** 15:43		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	72	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	63	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: W33FBD-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-005 Work Order #...: FPT6X1AA Matrix.....: WG
Date Sampled...: 06/02/03 Date Received..: 06/03/03
Prep Date.....: 06/07/03 Analysis Date..: 06/25/03
Prep Batch #...: 3158136 Analysis Time..: 16:18
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
'arbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	57	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: W24-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-006	**Work Order #...:** FPT621AA	**Matrix.....:** WG	
Date Sampled...: 06/02/03	**Date Received..:** 06/03/03		
Prep Date.....: 06/07/03	**Analysis Date..:** 06/25/03		
Prep Batch #...: 3158136	**Analysis Time..:** 16:54		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**21**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**4.0 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**4.0 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**8.3**	**5.7**	**ng/L**
Dibenzothiophene	**6.1**	**4.1**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**8.0**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**4.0 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	37	(30 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	63	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W24-060203

GC/MS Semivolatiles

Lot-Sample #...: D3F030220-006	**Work Order #...:** FPT622AA	**Matrix.....:** WG	
Date Sampled...: 06/02/03	**Date Received..:** 06/03/03		
Prep Date.....: 06/07/03	**Analysis Date..:** 06/25/03		
Prep Batch #...: 3158136	**Analysis Time..:** 19:15		
Dilution Factor: 4			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	**280**	**20**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

QC DATA ASSOCIATION SUMMARY

D3F030220

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3158136	3158023
002	WG	SW846 8270C SIM		3158136	3158023
003	WG	SW846 8270C SIM		3158136	3158023
004	WG	SW846 8270C SIM		3158136	3158023
005	WG	SW846 8270C SIM		3158136	3158023
006	WG	SW846 8270C SIM		3158136	3158023

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3F030220 Work Order #...: FP6LW1AA Matrix.....: WATER
MB Lot-Sample #: D3F070000-136

Prep Date.....: 06/07/03 Analysis Time..: 11:36
Analysis Date..: 06/25/03 Prep Batch #...: 3158136
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
hrysene	ND	5.6	ng/L	SW846 8270C SIM
ibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	65	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3F030220 Work Order #...: FP6LW1AC Matrix.....: WATER
LCS Lot-Sample#: D3F070000-136
Prep Date.....: 06/07/03 Analysis Date..: 06/25/03
Prep Batch #...: 3158136 Analysis Time..: 12:11
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**58**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**60**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**55**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**54**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**51**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**55**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**56**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	56	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3F030220 Work Order #...: FP6LW1AC Matrix.....: WATER
LCS Lot-Sample#: D3F070000-136
Prep Date.....: 06/07/03 Analysis Date..: 06/25/03
Prep Batch #...: 3158136 Analysis Time..: 12:11
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**75.0**	**43.9**	**ng/L**	**58**	**SW846 8270C S**
Chrysene	**75.0**	**44.8**	**ng/L**	**60**	**SW846 8270C S**
Fluorene	**75.0**	**41.4**	**ng/L**	**55**	**SW846 8270C S**
Indene	**75.0**	**40.4**	**ng/L**	**54**	**SW846 8270C S**
2-Methylnaphthalene	**75.0**	**38.5**	**ng/L**	**51**	**SW846 8270C S**
Naphthalene	**75.0**	**41.5**	**ng/L**	**55**	**SW846 8270C S**
Quinoline	**75.0**	**42.0**	**ng/L**	**56**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	56	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3F030220	**Work Order #...:**	FPT6H1AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3F030220-001		FPT6H1AD-MSD		
Date Sampled...:	06/02/03	**Date Received..:**	06/03/03		
Prep Date.....:	06/07/03	**Analysis Date..:**	06/25/03		
Prep Batch #...:	3158136	**Analysis Time..:**	13:22		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**11 a**	**(30 - 150)**			**SW846 8270C SIM**
	10 a	**(30 - 150)**	**10**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**38**	**(30 - 132)**			**SW846 8270C SIM**
	36	**(30 - 132)**	**11**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**55**	**(30 - 132)**			**SW846 8270C SIM**
	65	**(30 - 132)**	**2.3**	**(0-50)**	**SW846 8270C SIM**
Indene	**11 a**	**(30 - 150)**			**SW846 8270C SIM**
	100	**(30 - 150)**	**5.4**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**58**	**(30 - 150)**			**SW846 8270C SIM**
	63	**(30 - 150)**	**1.2**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**58**	**(30 - 150)**			**SW846 8270C SIM**
	62	**(30 - 150)**	**0.57**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**66**	**(30 - 150)**			**SW846 8270C SIM**
	70	**(30 - 150)**	**0.27**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	43	(30 - 118)
	41	(30 - 118)
Fluorene d-10	49	(41 - 162)
	51	(41 - 162)
Naphthalene-d8	61	(30 - 108)
	65	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3F030220 **Work Order #...:** FPT6H1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3F030220-001 FPT6H1AD-MSD
Date Sampled...: 06/02/03 **Date Received..:** 06/03/03
Prep Date.....: 06/07/03 **Analysis Date..:** 06/25/03
Prep Batch #...: 3158136 **Analysis Time..:** 13:22
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**76.0**	**8.01**	**ng/L**	**11 a**		**SW846 8270C SIM**
	ND	**71.9**	**7.24**	**ng/L**	**10 a**	**10**	**SW846 8270C SIM**
Chrysene	**ND**	**76.0**	**28.8**	**ng/L**	**38**		**SW846 8270C SIM**
	ND	**71.9**	**25.7**	**ng/L**	**36**	**11**	**SW846 8270C SIM**
Fluorene	**160**	**76.0**	**206**	**ng/L**	**55**		**SW846 8270C SIM**
	160	**71.9**	**210**	**ng/L**	**65**	**2.3**	**SW846 8270C SIM**
Indene	**1100**	**76.0**	**1150**	**ng/L**	**11 a**		**SW846 8270C SIM**
	1100	**71.9**	**1210**	**ng/L**	**100**	**5.4**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**76.0**	**44.4**	**ng/L**	**58**		**SW846 8270C SIM**
	ND	**71.9**	**45.0**	**ng/L**	**63**	**1.2**	**SW846 8270C SIM**
Naphthalene	**52**	**76.0**	**96.0**	**ng/L**	**58**		**SW846 8270C SIM**
	52	**71.9**	**96.5**	**ng/L**	**62**	**0.57**	**SW846 8270C SIM**
Quinoline	**8.4**	**76.0**	**58.7**	**ng/L**	**66**		**SW846 8270C SIM**
	8.4	**71.9**	**58.9**	**ng/L**	**70**	**0.27**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	43	(30 - 118)
	41	(30 - 118)
Fluorene d-10	49	(41 - 162)
	51	(41 - 162)
Naphthalene-d8	61	(30 - 108)
	65	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

NB 6/3/03

SEVERN TRENT SERVICES — **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	SCOTT ANDERSON	6-2-03	150738
Address / City	Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Lab Number	Page ____ of ____
Project Name and Location (State): SAME	Site Contact: SAME / Lab Contact	Analysis (Attach list if more space is needed): PPL PAH 75	Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.	Carrier/Waybill Number: FED EX 806828 1300		

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH		PPL PAH 75	Special Instructions/ Conditions of Receipt
W410-060203 CW# 0011	6-2-03	12100		X			X						6	X	PPL PAH 75
W410D-060203	6-2-03	12:10		X			X						6	X	
W410MS-060203 CW# 0008	6-2-03	12:20		X			X						6	X	
W410MSD-060203	6-2-03	12:30		X			X						6	X	PPL PAH 75

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: MJA	6-2-03		1. Received By	6/3/03	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

[redacted]

Chain of Custody Record

"1, 2, 4"
6/3/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	6/2/03	150747
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
3752 Wooddale Ave	952 924-2557		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416	Bill Gregg	Brian Stringer	
Project Name and Location (State)	**Carrier/Waybill Number**		
Reilly			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT 75	Special Instructions/ Conditions of Receipt
W33-060203	6/2/03	1145		X			6						X	PAH-PPT 75
W33FB-060203		1120												
W33FBD-060203		1125												
W24-060203		1500												
														Chain is for Coolers 0001 & 0012

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: A. Gaura	6/2/03	1600	1. Received By: [signature]	6/3/03	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3F030220 (M)

March 1, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of six aqueous samples for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on June 2, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3F030220.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W410-060203
W410D-060203
W33-060203
W33FB-060203
W33FBD-060203
W24-060203

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.4-5.3°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3158136. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses except for W33-060203. Chrysene-d12 and fluorene-d10 were below the control limits at 15 % and 39% respectively. The third surrogate is in control.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample W410-060203. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recoveries for benzo(e)pyrene was 11% for the MS sample and 10% for the MSD sample. The MS sample had a recovery of only 11% for Indene. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	11/10	ok	30-150/0-50
Indene	11/ok	ok	30-150/0-50

ENSR

Field Duplicate Results

The sample W410-060203 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for all detected analytes. A total of 18 out of 31 compounds were detected with a RPD range of 0.0% to 14.4%.

Quantitation Limits and Sample Results

There were three samples analyzed using a dilution. W410-060203 and W410D-060203 were diluted by a factor of 25 due to elevated concentrations of target analytes. Sample W24-060203 was diluted by a factor of 4 for the compound 2,3-Dihydroindene. All reporting limits were adjusted accordingly.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

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SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3H050238

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

September 9, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • *www.stlinc.com*

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3H050238

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eight samples were received under chain of custody on August 8, 2003. The samples were received in good condition at temperatures of 3.7°C and 2.7°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3H050238-007 and 008 were analyzed undiluted and then at a dilution due to high concentrations of target analytes in the samples. Analytes whose concentrations did not exceed the calibration range are reported from the undiluted analyses, while those compounds that required dilution are only reported from the diluted analyses. Naphthalene is reported in the undiluted analyses of sample 007 as "E" flagged to provide parent sample data in order to calculate recoveries for the MS/MSD performed on this sample. Surrogate recoveries were not reported for the dilutions.

The MS/MSD performed on sample D3H050238-007 demonstrated recoveries that were above control limits for naphthalene. The MS demonstrated an additional recovery that was above the upper control limit for indene.

The MS/MSD associated with batch 3223209 was performed on a sample from another client and/or lot and was not in control.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3H050238	
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	5
MS Surrogates	3	3
MSD	7	6
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	24	24
Samples and QC Internal Standard Area	36	36
TOTAL	**224**	**221**
% Completeness	**98.7%**	

*A MS/MSD was performed on sample W439-080403

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3H050238					
Sample: W439-080403		DUP: W439D-080403			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	75	Acenaphthene	80	6.5	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	6.1	2,3-Benzofuran	6.8	10.9	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	66	Benzo(b)thiophene	73	10.1	
Biphenyl	9.3	Biphenyl	9.9	6.3	
Carbazole	17	Carbazole	17	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	14	Dibenzofuran	14	0.0	
Dibenzothiophene	2.0	Dibenzothiophene	2.9	36.7	
2,3-Dihydroindene	180	2,3-Dihydroindene	200	10.5	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	12	Fluorene	13	8.0	
Indene	88	Indene	98	10.8	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	26	2-Methylnaphthalene	29	10.9	
1-Methylnaphthalene	94	1-Methylnaphthalene	100	6.2	
Naphthalene	780	Naphthalene	840	7.4	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	9.6	Phenanthrene	10	4.1	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	1.5	Quinoline	1.7	12.5	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3H050238

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
P307-080403 08/04/03 08:50 001				
Acenaphthene	11	10	ug/L	SW846 8270C
Acenaphthylene	1.7 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	5.5 J	10	ug/L	SW846 8270C
Carbazole	3.8 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	24	10	ug/L	SW846 8270C
Fluorene	2.4 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	12	10	ug/L	SW846 8270C
P309-080403 08/04/03 12:15 003				
Acenaphthene	21	10	ug/L	SW846 8270C
Carbazole	7.3 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	11	10	ug/L	SW846 8270C
Naphthalene	3.8 J	10	ug/L	SW846 8270C
W439-080403 08/04/03 08:00 007				
Acenaphthene	75	10	ug/L	SW846 8270C
2,3-Benzofuran	6.1 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	66	10	ug/L	SW846 8270C
Biphenyl	9.3 J	10	ug/L	SW846 8270C
Carbazole	17	10	ug/L	SW846 8270C
Dibenzofuran	14	10	ug/L	SW846 8270C
Dibenzothiophene	2.0 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	180	100	ug/L	SW846 8270C
Fluorene	12	10	ug/L	SW846 8270C
Indene	88	10	ug/L	SW846 8270C
2-Methylnaphthalene	26	10	ug/L	SW846 8270C
1-Methylnaphthalene	94	10	ug/L	SW846 8270C
Naphthalene	780	100	ug/L	SW846 8270C
Phenanthrene	9.6 J	10	ug/L	SW846 8270C
Quinoline	1.5 J	10	ug/L	SW846 8270C
W439D-080403 08/04/03 08:05 008				
Acenaphthene	80	10	ug/L	SW846 8270C
2,3-Benzofuran	6.8 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	73	10	ug/L	SW846 8270C
Biphenyl	9.9 J	10	ug/L	SW846 8270C
Carbazole	17	10	ug/L	SW846 8270C
Dibenzofuran	14	10	ug/L	SW846 8270C
Dibenzothiophene	2.9 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	200	100	ug/L	SW846 8270C

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H050238

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W439D-080403 08/04/03 08:05 008				
Fluorene	13	10	ug/L	SW846 8270C
Indene	98	10	ug/L	SW846 8270C
2-Methylnaphthalene	29	10	ug/L	SW846 8270C
1-Methylnaphthalene	100	10	ug/L	SW846 8270C
Naphthalene	840	100	ug/L	SW846 8270C
Phenanthrene	10	10	ug/L	SW846 8270C
Quinoline	1.7 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3H050238

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3H050238

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H050238

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FVNAC	001	P307-080403	08/04/03	08:50
FVNAF	002	P112-080403	08/04/03	13:15
FVNAH	003	P309-080403	08/04/03	12:15
FVNAK	004	P308-080403	08/04/03	09:50
FVNAL	005	P308FB-080403	08/04/03	09:45
FVNAP	006	P308FBD-080403	08/04/03	09:45
FVNAQ	007	W439-080403	08/04/03	08:00
FVNAR	008	W439D-080403	08/04/03	08:05

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: P307-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-001 Work Order #...: FVNAC1AA Matrix.....: WG
Date Sampled...: 08/04/03 Date Received..: 08/05/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 11:36
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**11**	**10**	**ug/L**
Acenaphthylene	**1.7 J**	**10**	**ug/L**
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**5.5 J**	**10**	**ug/L**
Biphenyl	ND	10	ug/L
Carbazole	**3.8 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**24**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**2.4 J**	**10**	**ug/L**
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**12**	**10**	**ug/L**
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(30 - 160)
Fluorene d-10	81	(36 - 127)
Naphthalene-d8	78	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: P112-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-002 **Work Order #...:** FVNAF1AA **Matrix.....:** WG
Date Sampled...: 08/04/03 **Date Received..:** 08/05/03
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 12:13
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	92	(30 - 160)
Fluorene d-10	86	(36 - 127)
Naphthalene-d8	76	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: P309-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-003	**Work Order #...:** FVNAH1AA	**Matrix.....:** WG
Date Sampled...: 08/04/03	**Date Received..:** 08/05/03	
Prep Date.....: 08/11/03	**Analysis Date..:** 09/03/03	
Prep Batch #...: 3223209	**Analysis Time..:** 12:50	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**21**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	**7.3 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**11**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	**3.8 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	63	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	62	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: P308-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-004 Work Order #...: FVNAK1AA Matrix.....: WG
Date Sampled...: 08/04/03 Date Received..: 08/05/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 13:26
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	68	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: P308FB-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-005 Work Order #...: FVNAL1AA Matrix.....: WG
Date Sampled...: 08/04/03 Date Received..: 08/05/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 14:04
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	69	(36 - 127)
Naphthalene-d8	73	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: P308FBD-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-006 Work Order #...: FVNAP1AA Matrix.....: WG
Date Sampled...: 08/04/03 Date Received..: 08/05/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 14:41
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	69	(36 - 127)
Naphthalene-d8	65	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W439-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-007	**Work Order #...:** FVNAQ1AA	**Matrix.....:** WG	
Date Sampled...: 08/04/03	**Date Received..:** 08/05/03		
Prep Date.....: 08/11/03	**Analysis Date..:** 09/03/03		
Prep Batch #...: 3223209	**Analysis Time..:** 15:18		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**75**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**6.1 J**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**66**	**10**	**ug/L**
Biphenyl	**9.3 J**	**10**	**ug/L**
Carbazole	**17**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**14**	**10**	**ug/L**
Dibenzothiophene	**2.0 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**12**	**10**	**ug/L**
Indene	**88**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**26**	**10**	**ug/L**
1-Methylnaphthalene	**94**	**10**	**ug/L**
Naphthalene	**880 E**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**9.6 J**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	**1.5 J**	**10**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	43	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	60	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

CITY OF ST. LOUIS PARK

Client Sample ID: W439-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-007	**Work Order #...:** FVNAQ2AA	**Matrix.....:** WG	
Date Sampled...: 08/04/03	**Date Received..:** 08/05/03		
Prep Date.....: 08/11/03	**Analysis Date..:** 09/04/03		
Prep Batch #...: 3223209	**Analysis Time..:** 16:23		
Dilution Factor: 10			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	**180**	**100**	**ug/L**
Naphthalene	**780**	**100**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W439D-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-008 Work Order #...: FVNAR1AA Matrix.....: WG
Date Sampled...: 08/04/03 Date Received..: 08/05/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 17:08
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**80**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**6.8 J**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**73**	**10**	**ug/L**
Biphenyl	**9.9 J**	**10**	**ug/L**
Carbazole	**17**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**14**	**10**	**ug/L**
Dibenzothiophene	**2.9 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**13**	**10**	**ug/L**
Indene	**98**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**29**	**10**	**ug/L**
1-Methylnaphthalene	**100**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**10**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	**1.7 J**	**10**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	56	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	68	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W439D-080403

GC/MS Semivolatiles

Lot-Sample #...: D3H050238-008	Work Order #...: FVNAR2AA	Matrix.....: WG	
Date Sampled...: 08/04/03	Date Received..: 08/05/03		
Prep Date.....: 08/11/03	Analysis Date..: 09/04/03		
Prep Batch #...: 3223209	Analysis Time..: 17:01		
Dilution Factor: 10			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	200	100	ug/L
Naphthalene	840	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

QC DATA ASSOCIATION SUMMARY

D3H050238

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3223209	3223083
002	WG	SW846 8270C		3223209	3223083
003	WG	SW846 8270C		3223209	3223083
004	WG	SW846 8270C		3223209	3223083
005	WG	SW846 8270C		3223209	3223083
006	WG	SW846 8270C		3223209	3223083
007	WG	SW846 8270C		3223209	3223083
008	WG	SW846 8270C		3223209	3223083

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H050238 **Work Order #...:** FV2HF1AA **Matrix.....:** WATER
MB Lot-Sample #: D3H110000-209

Prep Date.....: 08/11/03 **Analysis Time..:** 09:45
Analysis Date..: 09/03/03 **Prep Batch #...:** 3223209
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	61	(36 - 127)
Naphthalene-d8	55	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H050238 **Work Order #...:** FV2HF1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H110000-209
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 10:22
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**72**	**(30 - 150)**	**SW846 8270C**
Chrysene	**74**	**(43 - 124)**	**SW846 8270C**
Fluorene	**72**	**(51 - 120)**	**SW846 8270C**
Indene	**62**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**62**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**65**	**(43 - 128)**	**SW846 8270C**
Quinoline	**61**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H050238 **Work Order #...:** FV2HF1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H110000-209
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 10:22
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**35.9**	**ug/L**	**72**	**SW846 8270C**
Chrysene	**50.0**	**37.1**	**ug/L**	**74**	**SW846 8270C**
Fluorene	**50.0**	**36.0**	**ug/L**	**72**	**SW846 8270C**
Indene	**50.0**	**30.8**	**ug/L**	**62**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**31.2**	**ug/L**	**62**	**SW846 8270C**
Naphthalene	**50.0**	**32.7**	**ug/L**	**65**	**SW846 8270C**
Quinoline	**50.0**	**30.6**	**ug/L**	**61**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H050238	**Work Order #...:**	FVNAQ1AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H050238-007		FVNAQ1AD-MSD		
Date Sampled...:	08/04/03	**Date Received..:**	08/05/03		
Prep Date.....:	08/11/03	**Analysis Date..:**	09/03/03		
Prep Batch #...:	3223209	**Analysis Time..:**	15:54		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**73**	**(30 - 150)**			**SW846 8270C**
	73	**(30 - 150)**	**0.81**	**(0-30)**	**SW846 8270C**
Chrysene	**64**	**(43 - 124)**			**SW846 8270C**
	68	**(43 - 124)**	**8.2**	**(0-30)**	**SW846 8270C**
Fluorene	**98**	**(51 - 120)**			**SW846 8270C**
	69	**(51 - 120)**	**25**	**(0-30)**	**SW846 8270C**
Indene	**123 a**	**(49 - 108)**			**SW846 8270C**
	68	**(49 - 108)**	**20**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**87**	**(47 - 138)**			**SW846 8270C**
	58	**(47 - 138)**	**23**	**(0-30)**	**SW846 8270C**
Naphthalene	**433 a**	**(43 - 128)**			**SW846 8270C**
	155 a	**(43 - 128)**	**14**	**(0-30)**	**SW846 8270C**
Quinoline	**75**	**(40 - 126)**			**SW846 8270C**
	70	**(40 - 126)**	**5.0**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(30 - 160)
	59	(30 - 160)
Fluorene d-10	72	(36 - 127)
	58	(36 - 127)
Naphthalene-d8	76	(37 - 107)
	65	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H050238 **Work Order #...:** FVNAQ1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3H050238-007 FVNAQ1AD-MSD
Date Sampled...: 08/04/03 **Date Received..:** 08/05/03
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 15:54
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**51.8**	**38.0**	**ug/L**	**73**		**SW846 8270C**
	ND	**52.6**	**38.3**	**ug/L**	**73**	**0.81**	**SW846 8270C**
Chrysene	**ND**	**51.8**	**33.1**	**ug/L**	**64**		**SW846 8270C**
	ND	**52.6**	**35.9**	**ug/L**	**68**	**8.2**	**SW846 8270C**
Fluorene	**12**	**51.8**	**62.7**	**ug/L**	**98**		**SW846 8270C**
	12	**52.6**	**48.8**	**ug/L**	**69**	**25**	**SW846 8270C**
Indene	**88**	**51.8**	**152**	**ug/L**	**123 a**		**SW846 8270C**
	88	**52.6**	**124**	**ug/L**	**68**	**20**	**SW846 8270C**
2-Methylnaphthalene	**26**	**51.8**	**71.3**	**ug/L**	**87**		**SW846 8270C**
	26	**52.6**	**56.8**	**ug/L**	**58**	**23**	**SW846 8270C**
Naphthalene	**880**	**51.8**	**1100**	**ug/L**	**433 a**		**SW846 8270C**
	880	**52.6**	**959**	**ug/L**	**155 a**	**14**	**SW846 8270C**
Quinoline	**1.5**	**51.8**	**40.6**	**ug/L**	**75**		**SW846 8270C**
	1.5	**52.6**	**38.6**	**ug/L**	**70**	**5.0**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(30 - 160)
	59	(30 - 160)
Fluorene d-10	72	(36 - 127)
	58	(36 - 127)
Naphthalene-d8	76	(37 - 107)
	65	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H050238	**Work Order #...:**	FVQ5M1AC-MS	**Matrix.....:**	WATER
MS Lot-Sample #:	D3H060308-007		FVQ5M1AD-MSD		
Date Sampled...:	08/05/03	**Date Received..:**	08/06/03		
Prep Date.....:	08/11/03	**Analysis Date..:**	09/04/03		
Prep Batch #...:	3223209	**Analysis Time..:**	17:38		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**73**	**(30 - 150)**			**SW846 8270C**
	100	**(30 - 150)**	**24**	**(0-30)**	**SW846 8270C**
Chrysene	**73**	**(43 - 124)**			**SW846 8270C**
	101	**(43 - 124)**	**25**	**(0-30)**	**SW846 8270C**
Fluorene	**77**	**(51 - 120)**			**SW846 8270C**
	95	**(51 - 120)**	**14**	**(0-30)**	**SW846 8270C**
Indene	**44 a**	**(49 - 108)**			**SW846 8270C**
	60	**(49 - 108)**	**23**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**55**	**(47 - 138)**			**SW846 8270C**
	75	**(47 - 138)**	**23**	**(0-30)**	**SW846 8270C**
Naphthalene	**52**	**(43 - 128)**			**SW846 8270C**
	71	**(43 - 128)**	**23**	**(0-30)**	**SW846 8270C**
Quinoline	**75**	**(40 - 126)**			**SW846 8270C**
	96	**(40 - 126)**	**17**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
	82	(30 - 160)
Fluorene d-10	61	(36 - 127)
	76	(36 - 127)
Naphthalene-d8	54	(37 - 107)
	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H050238 **Work Order #...:** FVQ5M1AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3H060308-007 FVQ5M1AD-MSD
Date Sampled...: 08/05/03 **Date Received..:** 08/06/03
Prep Date.....: 08/11/03 **Analysis Date..:** 09/04/03
Prep Batch #...: 3223209 **Analysis Time..:** 17:38
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**51.2**	**37.4**	**ug/L**	**73**		**SW846 8270C**
	ND	**47.4**	**47.6**	**ug/L**	**100**	**24**	**SW846 8270C**
Chrysene	**ND**	**51.2**	**37.4**	**ug/L**	**73**		**SW846 8270C**
	ND	**47.4**	**47.9**	**ug/L**	**101**	**25**	**SW846 8270C**
Fluorene	**ND**	**51.2**	**39.3**	**ug/L**	**77**		**SW846 8270C**
	ND	**47.4**	**45.2**	**ug/L**	**95**	**14**	**SW846 8270C**
Indene	**ND**	**51.2**	**22.4**	**ug/L**	**44 a**		**SW846 8270C**
	ND	**47.4**	**28.3**	**ug/L**	**60**	**23**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**51.2**	**28.2**	**ug/L**	**55**		**SW846 8270C**
	ND	**47.4**	**35.6**	**ug/L**	**75**	**23**	**SW846 8270C**
Naphthalene	**ND**	**51.2**	**26.7**	**ug/L**	**52**		**SW846 8270C**
	ND	**47.4**	**33.8**	**ug/L**	**71**	**23**	**SW846 8270C**
Quinoline	**ND**	**51.2**	**38.4**	**ug/L**	**75**		**SW846 8270C**
	ND	**47.4**	**45.3**	**ug/L**	**96**	**17**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
	82	(30 - 160)
Fluorene d-10	61	(36 - 127)
	76	(36 - 127)
Naphthalene-d8	54	(37 - 107)
	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

B 8/5/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	8/4/03	150751
Address 3752 Woodale Ave	**Telephone Number (Area Code)/Fax Number** 952 924 2557	**Lab Number**	**Page** 1 of 1
City St. Louis Park	**State** MN	**Zip Code** 55416	**Site Contact** Scott Anderson	**Lab Contact** Brian Stringer
Project Name and Location (State) Reilly	**Carrier/Waybill Number**	
Contract/Purchase Order/Quote No. 01620-032	

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: PAH PPB	Special Instructions/ Conditions of Receipt
P307-080403	8/4/03	850		X			2						X	PAH PPB
P112-080403		815												
P309-080403		1215												
P308-080403		950												
P308FB-080403		945												
P308FBD-080403		945												

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By A. Gander	8/4/03	1500	1. Received By Shawn Birrell	8/5/03	0840
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

2.7
8/5/03

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	8/4/03	150750
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
3752 Wooddale Ave.	952-924-2557 / 952924-2570		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416			
Project Name and Location (State)	**Carrier/Waybill Number**		
	Fed Ex		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	#	Analysis: BNA - PAH	Special Instructions/ Conditions of Receipt
W439-080403	8/4/03	0800		X			X						2	X	
W439D-080403	8/4/03	0805		X			X						2	X	
W439MS-080403	8/4/03	0807		X			X						2	X	
W439MSD-080403	8/4/03	0809		X			X						2	X	

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.		8/4/03	1:55PM	Aaron Dindel	8/5/03	0840
2.						
3.						

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3H050238 (N)

March 1, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of eight aqueous samples for part per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on August 4, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3H050238.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

P307-080403
P112-080403
P309-080403
P308-080403
P308FB-080403
P308FBD-080403
W439-080403
W439D-080403

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results

- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.7-3.7°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, prep batch 3223209. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample W439-080403. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recoveries for Indene were 123% for the MS sample. The MS/MSD for Naphthalene had elevated recoveries. The MS sample had a recovery of 433% and the MSD sample had a recovery of 155%. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Naphthalene	433/155	ok	43-128/0-30
Indene	123/ok	ok	49-108/0-30

ENSR

Field Duplicate Results

Sample W439-080403 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for all detected analytes. A total of 15 out of 31 compounds were detected with a RPD range of 0.0% to 36.7%.

Quantitation Limits and Sample Results

There were two samples analyzed using a dilution. W439-080403 and W439D-080403 were diluted by a factor of 10 due to elevated concentrations of target analytes. All reporting limits were adjusted accordingly.

All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

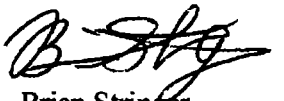
Project: Reilly Tar & Chemical Corporation

Lot #: D3H130303

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER



Brian Stringer
Project Manager

September 9, 2003

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3H130303

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eleven samples were received under chain of custody on August 12, 2003. The samples were received in good condition at temperatures of 3.4°C, 4.0°C and 2.8°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3H130303-005 and 006 were analyzed undiluted and then at dilutions due to high concentrations of target analytes in the samples. Analytes whose concentrations did not exceed the calibration range are reported from the undiluted analyses, while those compounds that required dilution are only reported from the diluted analyses. Naphthalene is reported in the undiluted analyses of sample 005 as "E" flagged to provide parent sample data in order to calculate recoveries for the MS/MSD performed on this sample. Surrogate recoveries were not reported for naphthalene due to the required dilution.

The MS/MSD performed on sample D3H130303-005 demonstrated recoveries that were below the control limits for naphthalene.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	**D3H130303**	
ANALYSIS:	**PAHs by SW846-8270C**	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	6
MS Surrogates	3	3
MSD	7	6
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	33	33
Samples and QC Internal Standard Area	42	42
TOTAL	**242**	**240**
% Completeness	**99.2%**	

*A MS/MSD was performed on sample W420-081203

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3H130303					
Sample: W420-081203		DUP: W420D-081203			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	130	Acenaphthene	130	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	1.9	Anthracene	2.0	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	33	2,3-Benzofuran	36	8.7	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	110	Benzo(b)thiophene	110	0.0	
Biphenyl	21	Biphenyl	22	4.7	
Carbazole	73	Carbazole	74	1.4	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	46	Dibenzofuran	47	2.2	
Dibenzothiophene	11	Dibenzothiophene	12	8.7	
2,3-Dihydroindene	210	2,3-Dihydroindene	230	9.1	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	48	Fluorene	52	8.0	
Indene	26	Indene	27	3.8	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	130	2-Methylnaphthalene	130	0.0	
1-Methylnaphthalene	130	1-Methylnaphthalene	140	7.4	
Naphthalene	1900	Naphthalene	2100	10.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	34	Phenanthrene	36	5.7	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3H130303

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W420-081203 08/12/03 11:45 005				
Acenaphthene	130	10	ug/L	SW846 8270C
Anthracene	1.9 J	10	ug/L	SW846 8270C
2,3-Benzofuran	33	10	ug/L	SW846 8270C
Benzo(b)thiophene	110	10	ug/L	SW846 8270C
Biphenyl	21	10	ug/L	SW846 8270C
Carbazole	73	10	ug/L	SW846 8270C
Dibenzofuran	46	10	ug/L	SW846 8270C
Dibenzothiophene	11	10	ug/L	SW846 8270C
2,3-Dihydroindene	210	20	ug/L	SW846 8270C
Fluorene	48	10	ug/L	SW846 8270C
Indene	26	10	ug/L	SW846 8270C
2-Methylnaphthalene	130	10	ug/L	SW846 8270C
1-Methylnaphthalene	130	10	ug/L	SW846 8270C
Naphthalene	1300	10	ug/L	SW846 8270C
Naphthalene	1900	200	ug/L	SW846 8270C
Phenanthrene	34	10	ug/L	SW846 8270C
W420D-081203 08/12/03 11:50 006				
Acenaphthene	130	10	ug/L	SW846 8270C
Anthracene	2.0 J	10	ug/L	SW846 8270C
2,3-Benzofuran	36	10	ug/L	SW846 8270C
Benzo(b)thiophene	110	10	ug/L	SW846 8270C
Biphenyl	22	10	ug/L	SW846 8270C
Carbazole	74	10	ug/L	SW846 8270C
Dibenzofuran	47	10	ug/L	SW846 8270C
Dibenzothiophene	12	10	ug/L	SW846 8270C
2,3-Dihydroindene	230	10	ug/L	SW846 8270C
2,3-Dihydroindene	230	20	ug/L	SW846 8270C
Fluorene	52	10	ug/L	SW846 8270C
Indene	27	10	ug/L	SW846 8270C
2-Methylnaphthalene	130	10	ug/L	SW846 8270C
1-Methylnaphthalene	140	10	ug/L	SW846 8270C
Naphthalene	1200	10	ug/L	SW846 8270C
Naphthalene	2100	200	ug/L	SW846 8270C
Phenanthrene	36	10	ug/L	SW846 8270C
W421-081203 08/12/03 12:05 007				
Acenaphthene	63	10	ug/L	SW846 8270C
Anthracene	4.3 J	10	ug/L	SW846 8270C
Benzo(a)anthracene	2.2 J	10	ug/L	SW846 8270C
Benzo(a)pyrene	1.1 J	10	ug/L	SW846 8270C

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H130303

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W421-081203 08/12/03 12:05 007				
Benzo(b)thiophene	25	10	ug/L	SW846 8270C
Biphenyl	6.1 J	10	ug/L	SW846 8270C
Carbazole	32	10	ug/L	SW846 8270C
Chrysene	1.5 J	10	ug/L	SW846 8270C
Dibenzofuran	19	10	ug/L	SW846 8270C
Dibenzothiophene	4.7 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	72	10	ug/L	SW846 8270C
Fluoranthene	12	10	ug/L	SW846 8270C
Fluorene	30	10	ug/L	SW846 8270C
Indene	24	10	ug/L	SW846 8270C
2-Methylnaphthalene	15	10	ug/L	SW846 8270C
1-Methylnaphthalene	51	10	ug/L	SW846 8270C
Naphthalene	140	10	ug/L	SW846 8270C
Phenanthrene	39	10	ug/L	SW846 8270C
Pyrene	7.7 J	10	ug/L	SW846 8270C
W409-081203 08/12/03 11:15 008				
Acenaphthene	35	10	ug/L	SW846 8270C
Acenaphthylene	5.1 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	17	10	ug/L	SW846 8270C
Biphenyl	4.0 J	10	ug/L	SW846 8270C
Carbazole	11	10	ug/L	SW846 8270C
Dibenzofuran	8.5 J	10	ug/L	SW846 8270C
Dibenzothiophene	1.4 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	23	10	ug/L	SW846 8270C
Fluoranthene	1.1 J	10	ug/L	SW846 8270C
Fluorene	15	10	ug/L	SW846 8270C
Indene	34	10	ug/L	SW846 8270C
1-Methylnaphthalene	39	10	ug/L	SW846 8270C
Naphthalene	7.6 J	10	ug/L	SW846 8270C
Phenanthrene	12	10	ug/L	SW846 8270C

METHODS SUMMARY

D3H130303

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3H130303

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H130303

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FV73Q	001	W438-081203	08/12/03	13:40
FV73W	002	W428-081203	08/12/03	16:15
FV730	003	W143-081203	08/12/03	17:00
FV731	004	W431-081203	08/12/03	15:20
FV734	005	W420-081203	08/12/03	11:45
FV74A	006	W420D-081203	08/12/03	11:50
FV74C	007	W421-081203	08/12/03	12:05
FV74G	008	W409-081203	08/12/03	11:15
FV74H	009	W409FB-081203	08/12/03	11:10
FV74K	010	W409FBD-081203	08/12/03	11:05
FV74Q	011	W131-081203	08/12/03	10:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W438-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-001 Work Order #...: FV73Q1AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 15:02
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	54	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W428-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-002	**Work Order #...:** FV73W1AA	**Matrix.....:** WG	
Date Sampled...: 08/12/03	**Date Received..:** 08/13/03		
Prep Date.....: 08/19/03	**Analysis Date..:** 09/05/03		
Prep Batch #...: 3231271	**Analysis Time..:** 15:40		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	53	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W143-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-003 Work Order #...: FV7301AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 16:17
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	71	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	58	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W431-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-004 Work Order #...: FV7311AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 16:55
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	78	(30 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	60	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W420-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-005	Work Order #...: FV7341AA	Matrix.....: WG
Date Sampled...: 08/12/03	Date Received..: 08/13/03	
Prep Date.....: 08/19/03	Analysis Date..: 09/05/03	
Prep Batch #...: 3231271	Analysis Time..: 17:32	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**130**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**1.9 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**33**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**110**	**10**	**ug/L**
Biphenyl	**21**	**10**	**ug/L**
Carbazole	**73**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**46**	**10**	**ug/L**
Dibenzothiophene	**11**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**48**	**10**	**ug/L**
Indene	**26**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**130**	**10**	**ug/L**
1-Methylnaphthalene	**130**	**10**	**ug/L**
Naphthalene	**1300 E**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**34**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	51	(30 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	56	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-005	Work Order #...: FV7342AA	Matrix.....: WG	
Date Sampled...: 08/12/03	Date Received..: 08/13/03		
Prep Date.....: 08/19/03	Analysis Date..: 09/07/03		
Prep Batch #...: 3231271	Analysis Time..: 22:55		
Dilution Factor: 2			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	210	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	53	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W420-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-005	Work Order #...: FV7343AA	Matrix.....: WG	
Date Sampled...: 08/12/03	Date Received..: 08/13/03		
Prep Date.....: 08/19/03	Analysis Date..: 09/07/03		
Prep Batch #...: 3231271	Analysis Time..: 22:19		
Dilution Factor: 20			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	**1900**	**200**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-006 Work Order #...: FV74A1AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 19:24
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**130**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**2.0 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**36**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**110**	**10**	**ug/L**
Biphenyl	**22**	**10**	**ug/L**
Carbazole	**74**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**47**	**10**	**ug/L**
Dibenzothiophene	**12**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**52**	**10**	**ug/L**
Indene	**27**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**130**	**10**	**ug/L**
1-Methylnaphthalene	**140**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**36**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	65	(30 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	60	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-081203

GC/MS Semivolatiles

Lot-Sample #...:	D3H130303-006	**Work Order #...:**	FV74A2AA	**Matrix.....:**	WG
Date Sampled...:	08/12/03	**Date Received..:**	08/13/03		
Prep Date.....:	08/19/03	**Analysis Date..:**	09/08/03		
Prep Batch #...:	3231271	**Analysis Time..:**	00:09		
Dilution Factor:	2				
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	**230**	**20**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	60	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W420D-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-006	**Work Order #...:** FV74A3AA	**Matrix.....:** WG	
Date Sampled...: 08/12/03	**Date Received..:** 08/13/03		
Prep Date.....: 08/19/03	**Analysis Date..:** 09/07/03		
Prep Batch #...: 3231271	**Analysis Time..:** 23:32		
Dilution Factor: 20			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	**2100**	**200**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W421-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-007 Work Order #...: FV74C1AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 20:01
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**63**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**4.3 J**	**10**	**ug/L**
Benzo(a)anthracene	**2.2 J**	**10**	**ug/L**
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	**1.1 J**	**10**	**ug/L**
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**25**	**10**	**ug/L**
Biphenyl	**6.1 J**	**10**	**ug/L**
Carbazole	**32**	**10**	**ug/L**
Chrysene	**1.5 J**	**10**	**ug/L**
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**19**	**10**	**ug/L**
Dibenzothiophene	**4.7 J**	**10**	**ug/L**
2,3-Dihydroindene	**72**	**10**	**ug/L**
Fluoranthene	**12**	**10**	**ug/L**
Fluorene	**30**	**10**	**ug/L**
Indene	**24**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**15**	**10**	**ug/L**
1-Methylnaphthalene	**51**	**10**	**ug/L**
Naphthalene	**140**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**39**	**10**	**ug/L**
Pyrene	**7.7 J**	**10**	**ug/L**
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	55	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W409-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-008 Work Order #...: FV74G1AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 20:38
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**35**	**10**	**ug/L**
Acenaphthylene	**5.1 J**	**10**	**ug/L**
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**17**	**10**	**ug/L**
Biphenyl	**4.0 J**	**10**	**ug/L**
Carbazole	**11**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**8.5 J**	**10**	**ug/L**
Dibenzothiophene	**1.4 J**	**10**	**ug/L**
2,3-Dihydroindene	**23**	**10**	**ug/L**
Fluoranthene	**1.1 J**	**10**	**ug/L**
Fluorene	**15**	**10**	**ug/L**
Indene	**34**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**39**	**10**	**ug/L**
Naphthalene	**7.6 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**12**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	59	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W409FB-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-009 Work Order #...: FV74H1AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 21:16
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	72	(30 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	50	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W409FBD-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-010 Work Order #...: FV74K1AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 21:53
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	76	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	59	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W131-081203

GC/MS Semivolatiles

Lot-Sample #...: D3H130303-011 Work Order #...: FV74Q1AA Matrix.....: WG
Date Sampled...: 08/12/03 Date Received..: 08/13/03
Prep Date.....: 08/19/03 Analysis Date..: 09/05/03
Prep Batch #...: 3231271 Analysis Time..: 22:30
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	59	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	47	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3H130303

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3231271	3231113
002	WG	SW846 8270C		3231271	3231113
003	WG	SW846 8270C		3231271	3231113
004	WG	SW846 8270C		3231271	3231113
005	WG	SW846 8270C		3231271	3231113
006	WG	SW846 8270C		3231271	3231113
007	WG	SW846 8270C		3231271	3231113
008	WG	SW846 8270C		3231271	3231113
009	WG	SW846 8270C		3231271	3231113
010	WG	SW846 8270C		3231271	3231113
011	WG	SW846 8270C		3231271	3231113

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H130303 **Work Order #...:** FWH3A1AA **Matrix.....:** WATER
MB Lot-Sample #: D3H190000-271

Prep Date.....: 08/19/03 **Analysis Time..:** 11:55
Analysis Date..: 09/05/03 **Prep Batch #...:** 3231271
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(30 - 160)
Fluorene d-10	56	(36 - 127)
Naphthalene-d8	41	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H130303 **Work Order #...:** FWH3A1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H190000-271
Prep Date.....: 08/19/03 **Analysis Date..:** 09/05/03
Prep Batch #...: 3231271 **Analysis Time..:** 12:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**79**	**(30 - 150)**	**SW846 8270C**
Chrysene	**80**	**(43 - 124)**	**SW846 8270C**
Fluorene	**74**	**(51 - 120)**	**SW846 8270C**
Indene	**49**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**55**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**58**	**(43 - 128)**	**SW846 8270C**
Quinoline	**69**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	51	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H130303 **Work Order #...:** FWH3A1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H190000-271
Prep Date.....: 08/19/03 **Analysis Date..:** 09/05/03
Prep Batch #...: 3231271 **Analysis Time..:** 12:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**39.3**	**ug/L**	**79**	**SW846 8270C**
Chrysene	**50.0**	**40.2**	**ug/L**	**80**	**SW846 8270C**
Fluorene	**50.0**	**37.0**	**ug/L**	**74**	**SW846 8270C**
Indene	**50.0**	**24.3**	**ug/L**	**49**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**27.7**	**ug/L**	**55**	**SW846 8270C**
Naphthalene	**50.0**	**28.8**	**ug/L**	**58**	**SW846 8270C**
Quinoline	**50.0**	**34.4**	**ug/L**	**69**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	51	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H130303	**Work Order #...:**	FV7341AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H130303-005		FV7341AD-MSD		
Date Sampled...:	08/12/03	**Date Received..:**	08/13/03		
Prep Date.....:	08/19/03	**Analysis Date..:**	09/05/03		
Prep Batch #...:	3231271	**Analysis Time..:**	18:10		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**72**	**(30 - 150)**			**SW846 8270C**
	74	**(30 - 150)**	**2.6**	**(0-30)**	**SW846 8270C**
Chrysene	**73**	**(43 - 124)**			**SW846 8270C**
	74	**(43 - 124)**	**0.93**	**(0-30)**	**SW846 8270C**
Fluorene	**73**	**(51 - 120)**			**SW846 8270C**
	82	**(51 - 120)**	**5.2**	**(0-30)**	**SW846 8270C**
Indene	**53**	**(49 - 108)**			**SW846 8270C**
	50	**(49 - 108)**	**3.0**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**65**	**(47 - 138)**			**SW846 8270C**
	62	**(47 - 138)**	**1.1**	**(0-30)**	**SW846 8270C**
Naphthalene	**0.0 a**	**(43 - 128)**			**SW846 8270C**
	0.0 a	**(43 - 128)**	**0.0**	**(0-30)**	**SW846 8270C**
Quinoline	**77**	**(40 - 126)**			**SW846 8270C**
	78	**(40 - 126)**	**1.6**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 160)
	52	(30 - 160)
Fluorene d-10	67	(36 - 127)
	68	(36 - 127)
Naphthalene-d8	62	(37 - 107)
	59	(37 - 107)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H130303 **Work Order #...:** FV7341AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3H130303-005 FV7341AD-MSD
Date Sampled...: 08/12/03 **Date Received..:** 08/13/03
Prep Date.....: 08/19/03 **Analysis Date..:** 09/05/03
Prep Batch #...: 3231271 **Analysis Time..:** 18:10
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**53.4**	**38.5**	**ug/L**	**72**		**SW846 8270C**
	ND	**53.5**	**39.5**	**ug/L**	**74**	**2.6**	**SW846 8270C**
Chrysene	**ND**	**53.4**	**39.2**	**ug/L**	**73**		**SW846 8270C**
	ND	**53.5**	**39.6**	**ug/L**	**74**	**0.93**	**SW846 8270C**
Fluorene	**48**	**53.4**	**87.3**	**ug/L**	**73**		**SW846 8270C**
	48	**53.5**	**91.9**	**ug/L**	**82**	**5.2**	**SW846 8270C**
Indene	**26**	**53.4**	**54.1**	**ug/L**	**53**		**SW846 8270C**
	26	**53.5**	**52.5**	**ug/L**	**50**	**3.0**	**SW846 8270C**
2-Methylnaphthalene	**130**	**53.4**	**160**	**ug/L**	**65**		**SW846 8270C**
	130	**53.5**	**158**	**ug/L**	**62**	**1.1**	**SW846 8270C**
Naphthalene	**1300**	**53.4**	**1270**	**ug/L**	**0.0 a**		**SW846 8270C**
	1300	**53.5**	**1170**	**ug/L**	**0.0 a**	**0.0**	**SW846 8270C**
Quinoline	**ND**	**53.4**	**40.9**	**ug/L**	**77**		**SW846 8270C**
	ND	**53.5**	**41.6**	**ug/L**	**78**	**1.6**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 160)
	52	(30 - 160)
Fluorene d-10	67	(36 - 127)
	68	(36 - 127)
Naphthalene-d8	62	(37 - 107)
	59	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

[redacted]

Chain of Custody Record

3.4°C PSP 8/13

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/12/03	Chain of Custody Number: 150757
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924 2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 01620-032			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB	Special Instructions/ Conditions of Receipt
W438-081203	8/12/03	1340		X			2						X	PAH PPB
W428-081203		1615												
W143-081203		1700												
W431-081203		1520												

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	8/12/03	1700	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

2. PSC 8/13/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 08-12-03	Chain of Custody Number: 150755
Address: 5005 Minnetonka Blvd.	Telephone Number (Area Code)/Fax Number: 952-924-2558	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN. / Zip Code: 55416	Site Contact:	Lab Contact:	
Project Name and Location (State):	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PPB-PAH
W420 08-12-03	08-12-03	11:45AM		X			2						X
W420D 08-12-03	08-12-03	11:50AM					2						X
W420 MS 08-12-03	08-12-03	11:55AM					2						X
W420 MSD 08-12-03	08-12-03	12:00PM					2						X
W421 08-12-03	08-12-03	12:05PM					2						X

Special Instructions/ Conditions of Receipt: PAH PPB

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [ ] Disposal By Lab [ ] Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	08-12-03	12:30PM	1. Received By	8/13/03	0830
2. Relinquished By	8/12/03	1400	2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

2.8°C PJP 8/13/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/12/03	Chain of Custody Number: 150756
Address: 3759 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924 2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 0620-032			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB
W409-081203	8/12/03	1115		X			2						X
W409 FB-081203		1110											
W409 FBD-081203		1105											
W131-081203	↓	1015		↓			↓						↓

Special Instructions/ Conditions of Receipt: PAH PPB

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: A. Graner	8/12/03	1400	1. Received By:	8.13.03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3H130303 (O)

March 1, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of 11 aqueous samples for part per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on August 12, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3H130303.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W438-081203
W428-081203
W143-081203
W431-081203
W420-081203
W420D-081203
W421-081203
W409-081203
W409FB-081203
W409FBD-081203
W131-081203

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks

- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.8-4.0°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, prep batch 3231271. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample W420-081203. The following table summarizes the percent recoveries and/or the relative percent differences RPDs of the spiked target analytes that fell outside the QC acceptance limits. The percent recoveries for Naphthalene had recoveries of 0% for both the MS/MSD. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Naphthalene	0/0	ok	43-128/0-30

ENSR

Field Duplicate Results

Sample W420-081203 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for all detected analytes. A total of 15 out of 31 compounds were detected with a RPD range of 0.0% to 10.0%.

Quantitation Limits and Sample Results

Two of the samples were analyzed using a dilution. W420-081203 and W420D-081203 were diluted by a factor of 2 and 20 due to elevated concentrations of target analytes. All reporting limits were adjusted accordingly.

All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

P

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3H120180

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

September 9, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3H120180

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Ten samples were received under chain of custody on August 12, 2003. The samples were received in good condition at temperatures of 3.2°C and 3.6°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Sample D3H120180-006 was analyzed undiluted and then at dilutions due to high concentrations of target analytes in the samples. Analytes whose concentrations did not exceed the calibration range are reported from the undiluted analyses, while those compounds that required dilution are only reported from the diluted analyses. Surrogate recoveries were not reported for naphthalene due to the required dilution.

The MS performed on sample D3H120180-007 demonstrated a recovery that was below the lower control limit for indene. The MSD was in control.

Due to a spike error when preparing sample D3H120180-008 for the CLLE extraction, the full scan spike was added to the sample instead of the correct surrogate. As per client request, the analysis for sample 008 was cancelled.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3H120180	
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	6
MS Surrogates	3	3
MSD	7	7
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	NA	NA
Sample Surrogates	27	27
Samples and QC Internal Standard Area	39	39
TOTAL	**199**	**198**
% Completeness	**99.5%**	

The reported MS/MSD was performed on sample W434 08-11-03.
The field duplicate analysis was cancelled as described above.

EXECUTIVE SUMMARY - Detection Highlights

D3H120180

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W27-081103 08/11/03 15:30 001				
Acenaphthene	22	10	ug/L	SW846 8270C
Benzo(b)thiophene	2.3 J	10	ug/L	SW846 8270C
Biphenyl	3.8 J	10	ug/L	SW846 8270C
Carbazole	2.5 J	10	ug/L	SW846 8270C
Dibenzofuran	6.1 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	18	10	ug/L	SW846 8270C
Fluorene	6.9 J	10	ug/L	SW846 8270C
Indene	5.6 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	14	10	ug/L	SW846 8270C
Naphthalene	3.8 J	10	ug/L	SW846 8270C
W20-081103 08/11/03 14:25 002				
Naphthalene	5.4 J	10	ug/L	SW846 8270C
W426-081103 08/11/03 10:45 005				
Acenaphthene	86	10	ug/L	SW846 8270C
Anthracene	2.3 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	3.7 J	10	ug/L	SW846 8270C
Biphenyl	7.5 J	10	ug/L	SW846 8270C
Carbazole	16	10	ug/L	SW846 8270C
Dibenzofuran	20	10	ug/L	SW846 8270C
Dibenzothiophene	1.9 J	10	ug/L	SW846 8270C
2,3-Dihydroindene	20	10	ug/L	SW846 8270C
Fluoranthene	1.8 J	10	ug/L	SW846 8270C
Fluorene	35	10	ug/L	SW846 8270C
Indene	4.7 J	10	ug/L	SW846 8270C
1-Methylnaphthalene	54	10	ug/L	SW846 8270C
Naphthalene	2.7 J	10	ug/L	SW846 8270C
Phenanthrene	32	10	ug/L	SW846 8270C
Quinoline	1.5 J	10	ug/L	SW846 8270C
W437-081103 08/11/03 09:55 006				
Acenaphthene	190	20	ug/L	SW846 8270C
Acridine	11	10	ug/L	SW846 8270C
2,3-Benzofuran	1.9 J	10	ug/L	SW846 8270C
Benzo(b)thiophene	150	10	ug/L	SW846 8270C
Biphenyl	42	10	ug/L	SW846 8270C
Carbazole	120	10	ug/L	SW846 8270C
Dibenzofuran	66	10	ug/L	SW846 8270C
Dibenzothiophene	1.1 J	10	ug/L	SW846 8270C

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H120180

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W437-081103 08/11/03 09:55 006				
2,3-Dihydroindene	110	10	ug/L	SW846 8270C
Fluorene	68	10	ug/L	SW846 8270C
Indene	55	10	ug/L	SW846 8270C
2-Methylnaphthalene	150	10	ug/L	SW846 8270C
1-Methylnaphthalene	210	20	ug/L	SW846 8270C
Naphthalene	4800	400	ug/L	SW846 8270C
Phenanthrene	1.6 J	10	ug/L	SW846 8270C
W434-081103 08/11/03 13:00 007				
Acenaphthene	3.0 J	10	ug/L	SW846 8270C
W101-081103 08/11/03 13:30 009				
2,3-Dihydroindene	3.1 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3H120180

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3H120180

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H120180

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FV4VV	001	W27-081103	08/11/03	15:30
FV4WC	002	W20-081103	08/11/03	14:25
FV4WE	003	W20FB-081103	08/11/03	14:15
FV4WL	004	W20FBD-081103	08/11/03	14:20
FV4WQ	005	W426-081103	08/11/03	10:45
FV4WV	006	W437-081103	08/11/03	09:55
FV4WW	007	W434-081103	08/11/03	13:00
FV4W6	009	W101-081103	08/11/03	13:30
FV4X0	010	W433-081103	08/11/03	12:20

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W27-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-001	**Work Order #...:** FV4VV1AA	**Matrix.....:** WATER
Date Sampled...: 08/11/03	**Date Received..:** 08/12/03	
Prep Date.....: 08/17/03	**Analysis Date..:** 09/04/03	
Prep Batch #...: 3229099	**Analysis Time..:** 20:43	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**22**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**2.3 J**	**10**	**ug/L**
Biphenyl	**3.8 J**	**10**	**ug/L**
Carbazole	**2.5 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**6.1 J**	**10**	**ug/L**
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**18**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**6.9 J**	**10**	**ug/L**
Indene	**5.6 J**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**14**	**10**	**ug/L**
Naphthalene	**3.8 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	51	(30 - 160)
Fluorene d-10	50	(36 - 127)
Naphthalene-d8	48	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W20-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-002	**Work Order #...:** FV4WC1AA	**Matrix.....:** WG
Date Sampled...: 08/11/03	**Date Received..:** 08/12/03	
Prep Date.....: 08/17/03	**Analysis Date..:** 09/04/03	
Prep Batch #...: 3229099	**Analysis Time..:** 21:21	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	**5.4 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	69	(36 - 127)
Naphthalene-d8	66	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W20FB-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-003 Work Order #...: FV4WE1AA Matrix.....: WG
Date Sampled...: 08/11/03 Date Received..: 08/12/03
Prep Date.....: 08/17/03 Analysis Date..: 09/04/03
Prep Batch #...: 3229099 Analysis Time..: 21:57
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	76	(30 - 160)
Fluorene d-10	65	(36 - 127)
Naphthalene-d8	62	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W20FBD-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-004 Work Order #...: FV4WL1AA Matrix.....: WG
Date Sampled...: 08/11/03 Date Received..: 08/12/03
Prep Date.....: 08/17/03 Analysis Date..: 09/04/03
Prep Batch #...: 3229099 Analysis Time..: 22:34
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	57	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W426-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-005	**Work Order #...:** FV4WQ1AA	**Matrix.....:** WG
Date Sampled...: 08/11/03	**Date Received..:** 08/12/03	
Prep Date.....: 08/17/03	**Analysis Date..:** 09/04/03	
Prep Batch #...: 3229099	**Analysis Time..:** 23:11	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**86**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**2.3 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**3.7 J**	**10**	**ug/L**
Biphenyl	**7.5 J**	**10**	**ug/L**
Carbazole	**16**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**20**	**10**	**ug/L**
Dibenzothiophene	**1.9 J**	**10**	**ug/L**
2,3-Dihydroindene	**20**	**10**	**ug/L**
Fluoranthene	**1.8 J**	**10**	**ug/L**
Fluorene	**35**	**10**	**ug/L**
Indene	**4.7 J**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	**54**	**10**	**ug/L**
Naphthalene	**2.7 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**32**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	**1.5 J**	**10**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	55	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W437-081103

GC/MS Semivolatiles

Lot-Sample #...:	D3H120180-006	**Work Order #...:**	FV4WV1AA	**Matrix.....:**	WG
Date Sampled...:	08/11/03	**Date Received..:**	08/12/03		
Prep Date.....:	08/17/03	**Analysis Date..:**	09/04/03		
Prep Batch #...:	3229099	**Analysis Time..:**	23:48		
Dilution Factor:	1				
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Acridine	**11**	**10**	**ug/L**
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**1.9 J**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**150**	**10**	**ug/L**
Biphenyl	**42**	**10**	**ug/L**
Carbazole	**120**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**66**	**10**	**ug/L**
Dibenzothiophene	**1.1 J**	**10**	**ug/L**
2,3-Dihydroindene	**110**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**68**	**10**	**ug/L**
Indene	**55**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**150**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**1.6 J**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	67	(30 - 160)
Fluorene d-10	67	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W437-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-006 Work Order #...: FV4WV2AA Matrix.....: WG
Date Sampled...: 08/11/03 Date Received..: 08/12/03
Prep Date.....: 08/17/03 Analysis Date..: 09/05/03
Prep Batch #...: 3229099 Analysis Time..: 13:10
Dilution Factor: 2
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	190	20	ug/L
1-Methylnaphthalene	210	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	62	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W437-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-006	Work Order #...: FV4WV3AA	Matrix.....: WG	
Date Sampled...: 08/11/03	Date Received..: 08/12/03		
Prep Date.....: 08/17/03	Analysis Date..: 09/07/03		
Prep Batch #...: 3229099	Analysis Time..: 21:06		
Dilution Factor: 40			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	**4800**	**400**	**ug/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W434-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-007	**Work Order #...:** FV4WW1AA	**Matrix.....:** WG
Date Sampled...: 08/11/03	**Date Received..:** 08/12/03	
Prep Date.....: 08/17/03	**Analysis Date..:** 09/05/03	
Prep Batch #...: 3229099	**Analysis Time..:** 00:25	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**3.0 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	56	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W434 08-11-03

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-007	**Work Order #...:** FV4WW1AA	**Matrix.....:** WG	
Date Sampled...: 08/11/03	**Date Received..:** 08/12/03		
Prep Date.....: 08/17/03	**Analysis Date..:** 09/05/03		
Prep Batch #...: 3229099	**Analysis Time..:** 00:25		
Dilution Factor: 1			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**3.0 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(30 - 160)
Fluorene d-10	59	(36 - 127)
Naphthalene-d8	56	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W101-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-009 **Work Order #...:** FV4W61AA **Matrix.....:** WG
Date Sampled...: 08/11/03 **Date Received..:** 08/12/03
Prep Date.....: 08/17/03 **Analysis Date..:** 09/05/03
Prep Batch #...: 3229099 **Analysis Time..:** 13:47
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	**3.1 J**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	62	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W433-081103

GC/MS Semivolatiles

Lot-Sample #...: D3H120180-010	**Work Order #...:** FV4X01AA	**Matrix.....:** WG
Date Sampled...: 08/11/03	**Date Received..:** 08/12/03	
Prep Date.....: 08/17/03	**Analysis Date..:** 09/05/03	
Prep Batch #...: 3229099	**Analysis Time..:** 14:25	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	72	(30 - 160)
Fluorene d-10	65	(36 - 127)
Naphthalene-d8	63	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3H120180

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270C		3229099	3229004
002	WG	SW846 8270C		3229099	3229004
003	WG	SW846 8270C		3229099	3229004
004	WG	SW846 8270C		3229099	3229004
005	WG	SW846 8270C		3229099	3229004
006	WG	SW846 8270C		3229099	3229004
007	WG	SW846 8270C		3229099	3229004
009	WG	SW846 8270C		3229099	3229004
010	WG	SW846 8270C		3229099	3229004

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H120180 **Work Order #...:** FWF0M1AA **Matrix.....:** WATER
MB Lot-Sample #: D3H170000-099

Prep Date.....: 08/17/03 **Analysis Time..:** 14:54
Analysis Date..: 09/04/03 **Prep Batch #...:** 3229099
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	89	(30 - 160)
Fluorene d-10	67	(36 - 127)
Naphthalene-d8	69	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H120180 **Work Order #...:** FWF0M1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H170000-099
Prep Date.....: 08/17/03 **Analysis Date..:** 09/04/03
Prep Batch #...: 3229099 **Analysis Time..:** 15:31
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**85**	**(30 - 150)**	**SW846 8270C**
Chrysene	**85**	**(43 - 124)**	**SW846 8270C**
Fluorene	**83**	**(51 - 120)**	**SW846 8270C**
Indene	**62**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**68**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**72**	**(43 - 128)**	**SW846 8270C**
Quinoline	**83**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	83	(30 - 160)
Fluorene d-10	69	(36 - 127)
Naphthalene-d8	70	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H120180 **Work Order #...:** FWF0M1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H170000-099
Prep Date.....: 08/17/03 **Analysis Date..:** 09/04/03
Prep Batch #...: 3229099 **Analysis Time..:** 15:31
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**42.4**	**ug/L**	**85**	**SW846 8270C**
Chrysene	**50.0**	**42.4**	**ug/L**	**85**	**SW846 8270C**
Fluorene	**50.0**	**41.5**	**ug/L**	**83**	**SW846 8270C**
Indene	**50.0**	**31.1**	**ug/L**	**62**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**34.0**	**ug/L**	**68**	**SW846 8270C**
Naphthalene	**50.0**	**36.0**	**ug/L**	**72**	**SW846 8270C**
Quinoline	**50.0**	**41.5**	**ug/L**	**83**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	83	(30 - 160)
Fluorene d-10	69	(36 - 127)
Naphthalene-d8	70	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H120180	**Work Order #...:**	FV4WW1AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H120180-007		FV4WW1AD-MSD		
Date Sampled...:	08/11/03	**Date Received..:**	08/12/03		
Prep Date.....:	08/17/03	**Analysis Date..:**	09/05/03		
Prep Batch #...:	3229099	**Analysis Time..:**	01:01		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**71**	**(30 - 150)**			**SW846 8270C**
	71	**(30 - 150)**	**1.5**	**(0-30)**	**SW846 8270C**
Chrysene	**82**	**(43 - 124)**			**SW846 8270C**
	68	**(43 - 124)**	**19**	**(0-30)**	**SW846 8270C**
Fluorene	**69**	**(51 - 120)**			**SW846 8270C**
	78	**(51 - 120)**	**11**	**(0-30)**	**SW846 8270C**
Indene	**47 a**	**(49 - 108)**			**SW846 8270C**
	54	**(49 - 108)**	**11**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**59**	**(47 - 138)**			**SW846 8270C**
	64	**(47 - 138)**	**6.2**	**(0-30)**	**SW846 8270C**
Naphthalene	**58**	**(43 - 128)**			**SW846 8270C**
	63	**(43 - 128)**	**8.0**	**(0-30)**	**SW846 8270C**
Quinoline	**72**	**(40 - 126)**			**SW846 8270C**
	75	**(40 - 126)**	**2.3**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(30 - 160)
	56	(30 - 160)
Fluorene d-10	56	(36 - 127)
	62	(36 - 127)
Naphthalene-d8	54	(37 - 107)
	59	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H120180 **Work Order #...:** FV4WW1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3H120180-007 FV4WW1AD-MSD
Date Sampled...: 08/11/03 **Date Received..:** 08/12/03
Prep Date.....: 08/17/03 **Analysis Date..:** 09/05/03
Prep Batch #...: 3229099 **Analysis Time..:** 01:01
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**48.2**	**34.0**	**ug/L**	**71**		**SW846 8270C**
	ND	**47.4**	**33.5**	**ug/L**	**71**	**1.5**	**SW846 8270C**
Chrysene	**ND**	**48.2**	**39.4**	**ug/L**	**82**		**SW846 8270C**
	ND	**47.4**	**32.4**	**ug/L**	**68**	**19**	**SW846 8270C**
Fluorene	**ND**	**48.2**	**33.1**	**ug/L**	**69**		**SW846 8270C**
	ND	**47.4**	**36.8**	**ug/L**	**78**	**11**	**SW846 8270C**
Indene	**ND**	**48.2**	**22.9**	**ug/L**	**47 a**		**SW846 8270C**
	ND	**47.4**	**25.5**	**ug/L**	**54**	**11**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**48.2**	**28.5**	**ug/L**	**59**		**SW846 8270C**
	ND	**47.4**	**30.4**	**ug/L**	**64**	**6.2**	**SW846 8270C**
Naphthalene	**ND**	**48.2**	**27.7**	**ug/L**	**58**		**SW846 8270C**
	ND	**47.4**	**30.0**	**ug/L**	**63**	**8.0**	**SW846 8270C**
Quinoline	**ND**	**48.2**	**34.6**	**ug/L**	**72**		**SW846 8270C**
	ND	**47.4**	**35.4**	**ug/L**	**75**	**2.3**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(30 - 160)
	56	(30 - 160)
Fluorene d-10	56	(36 - 127)
	62	(36 - 127)
Naphthalene-d8	54	(37 - 107)
	59	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

3.2° IB 8/12/03

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/11/03	Chain of Custody Number: 289201
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 - 924 - 2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB
W27-081103	8/11/03	1530		X			2						X
W20-081103	↓	1425		↓			↓						↓
W20FB-081103		1415											
W20FBD-081103		1420											
W426-081103		1045											
W437-081103	↓	955		↓			↓						↓

Special Instructions/ Conditions of Receipt: PAH PPB

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

1. Relinquished By: [signature]	Date: 8/11/03	Time: 1600	1. Received By: [signature]	Date: 8/12/03	Time: 0836
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

3.

8/12/03

Chain of Custody Record

SEVERN TRENT SERVICES — **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	08-11-03	150754
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
5005 Minnetonka Blvd.	952-924-2558		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416			
Project Name and Location (State)	**Carrier/Waybill Number**		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: PAH PPB	Special Instructions/ Conditions of Receipt
W434 08-11-03	08-11-03	1:00PM		X			2						X	
W434D 08-11-03	08-11-03	1:05PM		↓			↓						X	
W434MS 08-11-03	08-11-03	1:10PM											X	PAH PPB
W434MSD 08-11-03	08-11-03	1:15PM											X	
W101-08/03	8/11/03	1330											X	
W433-08/1/03	↓	1220		↓			↓						X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	08-11-03	2:15PM	1. Received By	8/12/03	0830
2. Relinquished By	8/11/03	1600	2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample: PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3H120180 (P) March 1, 2004

Site: Reilly Site, St. Louis Park, MN ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of nine aqueous samples for part per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on August 11, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3H120180.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W27-081103
W20-081103
W20FB-081103
W20FBD-081103
W426-081103
W437-081103
W434-081103
W101-081103
W433-081103

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results

- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. Sample W434D-081103 was spiked incorrectly during sample preparation. The analysis for this sample was cancelled by the City of St. Louis Park. There were no other discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 3.2-3.6°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, batch 3229099. Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample W434-081103. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for Indene was 47% for the MS sample. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Indene	47/ok	ok	49-108/0-30

Field Duplicate Results

No field duplicate samples were analyzed for this data package. The duplicate sample was incorrectly spiked and therefore cancelled by the City of St. Louis Park.

Quantitation Limits and Sample Results

There was one sample analyzed using a dilution. W437-081103 was diluted by a factor of 2 and 40 due to elevated concentrations of target analytes. All reporting limits were adjusted accordingly.

All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

Q

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3H060308

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

September 17, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stlinc.com

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

*(The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Radiochemistry	
• Subcontracted Data	

CASE NARRATIVE
D3H060308

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Ten samples were received under chain of custody on August 6, 2003. The samples were received in good condition at temperatures of 3.0°C and 4.4°C.

GC/MS Semivolatiles, Method SW846 8270C

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The recoveries were above control limits for all three surrogates in sample D3H060308-004. This is an indication of a possible high bias in the sample. There is no evidence of matrix effects; therefore the sample was re-extracted past the 14-day holding time for the method. The client was contacted and both sets of results are reported here.

The MS/MSD associated with batch 3223209 was performed on sample D3H060308-007 and demonstrated recoveries that were below the control limits for indene in the MS. An additional batch MS/MSD was performed on a sample from another lot and demonstrated recoveries above the control limits for indene in the MS and naphthalene in the MS/MSD.

There was insufficient sample volume for MS/MSD with the re-extraction batch 3251281.

No other anomalies were observed.

Data Completeness for Method 8270C

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3H060308	
ANALYSIS:	PAHs by SW846-8270C	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	6
MS Surrogates	3	3
MSD	7	7
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	30	30
Samples and QC Internal Standard Area	42	42
TOTAL	**236**	**235**
% Completeness	**99.6%**	

* MS/MSD performed on sample W422-080503 used in calculation

Sample Duplicate Calculation for Method 8270C

Sample Duplicate RPD					
LOT D3H060308					
Sample: W422-080503		DUP: W422D-080503			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	2.2	Acenaphthene	3.7	50.8	p*
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.
p* = calculated RPD is outside of control limits, however both results are below the reporting limits and are considered acceptable and the RPD is NA.

EXECUTIVE SUMMARY - Detection Highlights

D3H060308

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
P310-080503 08/05/03 12:30 001				
Acenaphthene	12	10	ug/L	SW846 8270C
Carbazole	6.0 J	10	ug/L	SW846 8270C
P312-080503 08/05/03 08:55 004				
Acenaphthene	22	10	ug/L	SW846 8270C
Acenaphthene	5.6 J	10	ug/L	SW846 8270C
Carbazole	4.1 J	10	ug/L	SW846 8270C
Naphthalene	6.0 J	10	ug/L	SW846 8270C
W422-080503 08/05/03 09:20 007				
Acenaphthene	2.2 J	10	ug/L	SW846 8270C
W422D-080503 08/05/03 09:22 008				
Acenaphthene	3.7 J	10	ug/L	SW846 8270C

METHODS SUMMARY

D3H060308

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3H060308

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H060308

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FVQ5C	001	P310-080503	08/05/03	12:30
FVQ5D	002	W117-080503	08/05/03	09:45
FVQ5E	003	W427-080503	08/05/03	11:15
FVQ5F	004	P312-080503	08/05/03	08:55
FVQ5H	005	P312FB-080503	08/05/03	08:45
FVQ5J	006	P312FBD-080503	08/05/03	08:50
FVQ5M	007	W422-080503	08/05/03	09:20
FVQ5Q	008	W422D-080503	08/05/03	09:22
FVQ5X	009	W136-080503	08/05/03	15:15
FVQ51	010	P109-080503	08/05/03	13:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: P310-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-001 Work Order #...: FVQ5C1AA Matrix.....: WG
Date Sampled...: 08/05/03 Date Received..: 08/06/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 17:45
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**12**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	**6.0 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	86	(36 - 127)
Naphthalene-d8	87	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W117-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-002 **Work Order #...:** FVQ5D1AA **Matrix.....:** WG
Date Sampled...: 08/05/03 **Date Received..:** 08/06/03
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 18:22
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	59	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	64	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W427-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-003 Work Order #...: FVQ5E1AA Matrix.....: WG
Date Sampled...: 08/05/03 Date Received..: 08/06/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 18:59
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	57	(30 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	66	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: P312-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-004	Work Order #...: FVQ5F1AA	Matrix.....: WG
Date Sampled...: 08/05/03	Date Received..: 08/06/03	
Prep Date.....: 08/11/03	Analysis Date..: 09/03/03	
Prep Batch #...: 3223209	Analysis Time..: 10:59	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**22**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	**4.1 J**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	**6.0 J**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	268 *	(30 - 160)
Fluorene d-10	208 *	(36 - 127)
Naphthalene-d8	222 *	(37 - 107)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: P312-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-004	**Work Order #...:** FVQ5F2AA	**Matrix.....:** WG
Date Sampled...: 08/05/03	**Date Received..:** 08/06/03	
Prep Date.....: 09/08/03	**Analysis Date..:** 09/12/03	
Prep Batch #...: 3251281	**Analysis Time..:** 15:18	
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**5.6 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(30 - 160)
Fluorene d-10	69	(36 - 127)
Naphthalene-d8	66	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: P312FB-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-005 Work Order #...: FVQ5H1AA Matrix.....: WG
Date Sampled...: 08/05/03 Date Received..: 08/06/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 19:36
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(30 - 160)
Fluorene d-10	54	(36 - 127)
Naphthalene-d8	51	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: P312FBD-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-006 Work Order #...: FVQ5J1AA Matrix.....: WG
Date Sampled...: 08/05/03 Date Received..: 08/06/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 20:13
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	66	(30 - 160)
Fluorene d-10	55	(36 - 127)
Naphthalene-d8	54	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: W422-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-007 Work Order #...: FVQ5M1AA Matrix.....: WG
Date Sampled...: 08/05/03 Date Received..: 08/06/03
Prep Date.....: 08/11/03 Analysis Date..: 09/03/03
Prep Batch #...: 3223209 Analysis Time..: 20:49
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**2.2 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	57	(30 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	52	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W422D-080503

GC/MS Semivolatiles

Lot-Sample #...:	D3H060308-008	**Work Order #...:**	FVQ5Q1AA	**Matrix.....:**	WG
Date Sampled...:	08/05/03	**Date Received..:**	08/06/03		
Prep Date.....:	08/11/03	**Analysis Date..:**	09/04/03		
Prep Batch #...:	3223209	**Analysis Time..:**	18:52		
Dilution Factor:	1				
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**3.7 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(30 - 160)
Fluorene d-10	61	(36 - 127)
Naphthalene-d8	54	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W136-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-009 Work Order #...: FVQ5X1AA Matrix.....: WG
Date Sampled...: 08/05/03 Date Received..: 08/06/03
Prep Date.....: 08/11/03 Analysis Date..: 09/04/03
Prep Batch #...: 3223209 Analysis Time..: 19:29
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	75	(30 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	59	(37 - 107)

QC DATA ASSOCIATION SUMMARY

D3H060308

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3223209	3223083
002	WG	SW846 8270C		3223209	3223083
003	WG	SW846 8270C		3223209	3223083
004	WG	SW846 8270C		3223209	3223083
	WG	SW846 8270C		3251281	
005	WG	SW846 8270C		3223209	3223083
006	WG	SW846 8270C		3223209	
007	WG	SW846 8270C		3223209	3223083
008	WG	SW846 8270C		3223209	3223083
009	WG	SW846 8270C		3223209	3223083
010	WG	SW846 8270C		3223209	3223083

CITY OF ST. LOUIS PARK

Client Sample ID: P109-080503

GC/MS Semivolatiles

Lot-Sample #...: D3H060308-010 Work Order #...: FVQ511AA Matrix.....: WG
Date Sampled...: 08/05/03 Date Received..: 08/06/03
Prep Date.....: 08/11/03 Analysis Date..: 09/04/03
Prep Batch #...: 3223209 Analysis Time..: 20:06
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Perylene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(30 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	48	(37 - 107)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H060308 **Work Order #...:** FV2HF1AA **Matrix.....:** WATER
MB Lot-Sample #: D3H110000-209

Prep Date.....: 08/11/03 **Analysis Time..:** 09:45
Analysis Date..: 09/03/03 **Prep Batch #...:** 3223209
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 160)
Fluorene d-10	61	(36 - 127)
Naphthalene-d8	55	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H060308 **Work Order #...:** FXTDA1AA **Matrix.....:** WATER
MB Lot-Sample #: D3I080000-281

Prep Date.....: 09/08/03 **Analysis Time..:** 14:03
Analysis Date..: 09/12/03 **Prep Batch #...:** 3251281
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	81	(30 - 160)
Fluorene d-10	65	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H060308 **Work Order #...:** FV2HF1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H110000-209
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 10:22
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**72**	**(30 - 150)**	**SW846 8270C**
Chrysene	**74**	**(43 - 124)**	**SW846 8270C**
Fluorene	**72**	**(51 - 120)**	**SW846 8270C**
Indene	**62**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**62**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**65**	**(43 - 128)**	**SW846 8270C**
Quinoline	**61**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H060308 **Work Order #...:** FV2HF1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H110000-209
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 10:22
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**35.9**	**ug/L**	**72**	**SW846 8270C**
Chrysene	**50.0**	**37.1**	**ug/L**	**74**	**SW846 8270C**
Fluorene	**50.0**	**36.0**	**ug/L**	**72**	**SW846 8270C**
Indene	**50.0**	**30.8**	**ug/L**	**62**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**31.2**	**ug/L**	**62**	**SW846 8270C**
Naphthalene	**50.0**	**32.7**	**ug/L**	**65**	**SW846 8270C**
Quinoline	**50.0**	**30.6**	**ug/L**	**61**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 160)
Fluorene d-10	58	(36 - 127)
Naphthalene-d8	61	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H060308 **Work Order #...:** FXTDA1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3I080000-281
Prep Date.....: 09/08/03 **Analysis Date..:** 09/12/03
Prep Batch #...: 3251281 **Analysis Time..:** 14:40
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**79**	**(30 - 150)**	**SW846 8270C**
Chrysene	**78**	**(43 - 124)**	**SW846 8270C**
Fluorene	**80**	**(51 - 120)**	**SW846 8270C**
Indene	**59**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**61**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**64**	**(43 - 128)**	**SW846 8270C**
Quinoline	**70**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	60	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H060308 **Work Order #...:** FXTDA1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3I080000-281
Prep Date.....: 09/08/03 **Analysis Date..:** 09/12/03
Prep Batch #...: 3251281 **Analysis Time..:** 14:40
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**39.5**	**ug/L**	**79**	**SW846 8270C**
Chrysene	**50.0**	**39.1**	**ug/L**	**78**	**SW846 8270C**
Fluorene	**50.0**	**40.2**	**ug/L**	**80**	**SW846 8270C**
Indene	**50.0**	**29.3**	**ug/L**	**59**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**30.7**	**ug/L**	**61**	**SW846 8270C**
Naphthalene	**50.0**	**32.2**	**ug/L**	**64**	**SW846 8270C**
Quinoline	**50.0**	**34.9**	**ug/L**	**70**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(30 - 160)
Fluorene d-10	64	(36 - 127)
Naphthalene-d8	60	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H060308	**Work Order #...:**	FVQ5M1AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H060308-007		FVQ5M1AD-MSD		
Date Sampled...:	08/05/03	**Date Received..:**	08/06/03		
Prep Date.....:	08/11/03	**Analysis Date..:**	09/04/03		
Prep Batch #...:	3223209	**Analysis Time..:**	17:38		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**73**	**(30 - 150)**			**SW846 8270C**
	100	**(30 - 150)**	**24**	**(0-30)**	**SW846 8270C**
Chrysene	**73**	**(43 - 124)**			**SW846 8270C**
	101	**(43 - 124)**	**25**	**(0-30)**	**SW846 8270C**
Fluorene	**77**	**(51 - 120)**			**SW846 8270C**
	95	**(51 - 120)**	**14**	**(0-30)**	**SW846 8270C**
Indene	**44 a**	**(49 - 108)**			**SW846 8270C**
	60	**(49 - 108)**	**23**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**55**	**(47 - 138)**			**SW846 8270C**
	75	**(47 - 138)**	**23**	**(0-30)**	**SW846 8270C**
Naphthalene	**52**	**(43 - 128)**			**SW846 8270C**
	71	**(43 - 128)**	**23**	**(0-30)**	**SW846 8270C**
Quinoline	**75**	**(40 - 126)**			**SW846 8270C**
	96	**(40 - 126)**	**17**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
	82	(30 - 160)
Fluorene d-10	61	(36 - 127)
	76	(36 - 127)
Naphthalene-d8	54	(37 - 107)
	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H060308	**Work Order #...:**	FVQ5M1AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H060308-007		FVQ5M1AD-MSD		
Date Sampled...:	08/05/03	**Date Received..:**	08/06/03		
Prep Date.....:	08/11/03	**Analysis Date..:**	09/04/03		
Prep Batch #...:	3223209	**Analysis Time..:**	17:38		
Dilution Factor:	1				

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**51.2**	**37.4**	**ug/L**	**73**		**SW846 8270C**
	ND	**47.4**	**47.6**	**ug/L**	**100**	**24**	**SW846 8270C**
Chrysene	**ND**	**51.2**	**37.4**	**ug/L**	**73**		**SW846 8270C**
	ND	**47.4**	**47.9**	**ug/L**	**101**	**25**	**SW846 8270C**
Fluorene	**ND**	**51.2**	**39.3**	**ug/L**	**77**		**SW846 8270C**
	ND	**47.4**	**45.2**	**ug/L**	**95**	**14**	**SW846 8270C**
Indene	**ND**	**51.2**	**22.4**	**ug/L**	**44 a**		**SW846 8270C**
	ND	**47.4**	**28.3**	**ug/L**	**60**	**23**	**SW846 8270C**
2-Methylnaphthalene	**ND**	**51.2**	**28.2**	**ug/L**	**55**		**SW846 8270C**
	ND	**47.4**	**35.6**	**ug/L**	**75**	**23**	**SW846 8270C**
Naphthalene	**ND**	**51.2**	**26.7**	**ug/L**	**52**		**SW846 8270C**
	ND	**47.4**	**33.8**	**ug/L**	**71**	**23**	**SW846 8270C**
Quinoline	**ND**	**51.2**	**38.4**	**ug/L**	**75**		**SW846 8270C**
	ND	**47.4**	**45.3**	**ug/L**	**96**	**17**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 160)
	82	(30 - 160)
Fluorene d-10	61	(36 - 127)
	76	(36 - 127)
Naphthalene-d8	54	(37 - 107)
	72	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H060308	**Work Order #...:**	FVNAQ1AC-MS	**Matrix.....:**	WATER
MS Lot-Sample #:	D3H050238-007		FVNAQ1AD-MSD		
Date Sampled...:	08/04/03	**Date Received..:**	08/05/03		
Prep Date.....:	08/11/03	**Analysis Date..:**	09/03/03		
Prep Batch #...:	3223209	**Analysis Time..:**	15:54		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**73**	**(30 - 150)**			**SW846 8270C**
	73	**(30 - 150)**	**0.81**	**(0-30)**	**SW846 8270C**
Chrysene	**64**	**(43 - 124)**			**SW846 8270C**
	68	**(43 - 124)**	**8.2**	**(0-30)**	**SW846 8270C**
Fluorene	**98**	**(51 - 120)**			**SW846 8270C**
	69	**(51 - 120)**	**25**	**(0-30)**	**SW846 8270C**
Indene	**123 a**	**(49 - 108)**			**SW846 8270C**
	68	**(49 - 108)**	**20**	**(0-30)**	**SW846 8270C**
2-Methylnaphthalene	**87**	**(47 - 138)**			**SW846 8270C**
	58	**(47 - 138)**	**23**	**(0-30)**	**SW846 8270C**
Naphthalene	**433 a**	**(43 - 128)**			**SW846 8270C**
	155 a	**(43 - 128)**	**14**	**(0-30)**	**SW846 8270C**
Quinoline	**75**	**(40 - 126)**			**SW846 8270C**
	70	**(40 - 126)**	**5.0**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(30 - 160)
	59	(30 - 160)
Fluorene d-10	72	(36 - 127)
	58	(36 - 127)
Naphthalene-d8	76	(37 - 107)
	65	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H060308 **Work Order #...:** FVNAQ1AC-MS **Matrix.....:** WATER
MS Lot-Sample #: D3H050238-007 FVNAQ1AD-MSD
Date Sampled...: 08/04/03 **Date Received..:** 08/05/03
Prep Date.....: 08/11/03 **Analysis Date..:** 09/03/03
Prep Batch #...: 3223209 **Analysis Time..:** 15:54
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**51.8**	**38.0**	**ug/L**	**73**		**SW846 8270C**
	ND	**52.6**	**38.3**	**ug/L**	**73**	**0.81**	**SW846 8270C**
Chrysene	**ND**	**51.8**	**33.1**	**ug/L**	**64**		**SW846 8270C**
	ND	**52.6**	**35.9**	**ug/L**	**68**	**8.2**	**SW846 8270C**
Fluorene	**12**	**51.8**	**62.7**	**ug/L**	**98**		**SW846 8270C**
	12	**52.6**	**48.8**	**ug/L**	**69**	**25**	**SW846 8270C**
Indene	**88**	**51.8**	**152**	**ug/L**	**123 a**		**SW846 8270C**
	88	**52.6**	**124**	**ug/L**	**68**	**20**	**SW846 8270C**
2-Methylnaphthalene	**26**	**51.8**	**71.3**	**ug/L**	**87**		**SW846 8270C**
	26	**52.6**	**56.8**	**ug/L**	**58**	**23**	**SW846 8270C**
Naphthalene	**880**	**51.8**	**1100**	**ug/L**	**433 a**		**SW846 8270C**
	880	**52.6**	**959**	**ug/L**	**155 a**	**14**	**SW846 8270C**
Quinoline	**1.5**	**51.8**	**40.6**	**ug/L**	**75**		**SW846 8270C**
	1.5	**52.6**	**38.6**	**ug/L**	**70**	**5.0**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(30 - 160)
	59	(30 - 160)
Fluorene d-10	72	(36 - 127)
	58	(36 - 127)
Naphthalene-d8	76	(37 - 107)
	65	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

O, ~~Shelf~~
MB
8/6/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/5/03	Chain of Custody Number: 150753
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 01620-032			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPB
P310-080503	8/5/03	1230		X			2						X
W117-080503		945											
W427-080503		1115											
P312-080503		855											
P312FB-080503		845											
P312FBD-080503	↓	850		↓			↓						↓

Special Instructions/ Conditions of Receipt: PAH PPB

Possible Hazard Identification: ☑ ~~Non-Hazard~~ ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	8/5/03	1600	1. Received By: Aaron Bindl	8/6/03	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

4.4°
8/6/03

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson	8/5/03	150752
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
3752 Wooddale Ave	952-924-2557 952-924-2570		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416			
Project Name and Location (State)	**Carrier/Waybill Number**		
Same			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	#	Analysis: PPB-PAH	Special Instructions/ Conditions of Receipt
W422-080503	8/5/03	0920		X									2	X	
W422D-080503	8/5/03	0922		X									2	X	
W422MS-080503	8/5/03	0925		X									2	X	
W422MSD-080503	8/5/03	0927		X									2	X	
W136-080503		1515		X									2	X	
P109-080503		1345		X									2	X	
															PAH PPB

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: A. Gavan	8/5/03	1600	1. Received By: Karen Birdsall	8/6/03	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3H060308 (Q)

March 2, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of ten aqueous samples for part per billion (ppb) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C. The samples were collected on August 12, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3H060308.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

P310-080503
W117-080503
W427-080503
P312-080503
P312FB-080503
P312FBD-080503
W422-080503
W422D-080503
W136-080503
P109-080503

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries

- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 3.0 and 4.4°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There were two method blanks for this data package, prep batch 3223209 and 3251281. Target analytes were not detected in either of the laboratory method blanks.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses except for sample P312-080503. All surrogate recoveries for this sample were above the control limits. The sample was re-extracted out of holding time per client request. The second extraction was within the acceptable range.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample P308-080503. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for indene was 44% for the MS. All other recoveries and RPDs were within the acceptable range. An additional MS/MSD sample was run on a sample from another lot (W439-080403 from data package D3H050238) and demonstrated percent recoveries above the control limits for indene in the MS and naphthalene in the MS/MSD.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Indene	44/ok	ok	49-108/0-30
Indene	123/ok	ok	49-108/0-30
Naphthalene	433/155	ok	40-126/0-30

Field Duplicate Results

The sample W420-081203 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for all detected analytes. A total of 15 out of 31 compounds were detected with a RPD range of 0.0% to 10.0%.

Quantitation Limits and Sample Results

There were two samples that were analyzed using a dilution. W420-081203 and W420D-081203 were diluted by a factor of 2 and 20 due to elevated concentrations of target analytes. All reporting limits were adjusted accordingly.

All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

R

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3H190227

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

September 30, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • *www.stl-inc.com*

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3H190227

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eight samples were received under chain of custody on August 19, 2003. The samples were received in good condition at temperatures of 2.8, 2.6, 3.2, 2.1, and 3.2°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The surrogate recovery of Fluorene-d10 was below the 30% threshold for samples D3H190227-002, 003, the Method Blank, and the MS/MSD of sample D3H190227-001. The surrogate recovery of Chrysene-d12 was below the 30% threshold for sample D3H190227-008.

The analytes Naphthalene and Phenanthrene were detected in the Method Blank below the project-specific reporting limits. Associated sample results are flagged "B".

The Laboratory Control Sample could not be analyzed and reported because the vial containing the extract was found to be cracked and the LCS was evaporated. There was insufficient sample volume to re-extract the samples and the holding time has expired. The client was notified.

The MS/MSD performed on sample D3H190227-001 demonstrated recoveries that were below the control limits for Benzo(e)pyrene and Quinoline. In addition the relative percent difference (RPD) was outside control limits for Quinoline.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3H190227	
ANALYSIS:	SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	29
MB Surrogates	3	2
LCS	7	0
LCS Surrogates	3	0
FB/FBD	62	58
MS	7	5
MS Surrogates	3	2
MSD	7	6
MSD Surrogates	3	2
MS/MSD RPD	7	6
Sample/Dup. RPD	31	31
Sample Surrogates	24	21
Samples and QC Internal Standard Area	33	33
TOTAL	**221**	**195**
% Completeness	**88.2%**	

*A MS/MSD was performed on sample E3-081803.

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3H190227					
Sample: E3-081803		DUP: E3D-081803			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	1.1	Naphthalene	1.0	9.5	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3H190227

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
E3-081803 08/18/03 11:45 001				
Naphthalene	1.1 J,B	8.6	ng/L	SW846 8270C SIM
E3D-081803 08/18/03 11:50 002				
Naphthalene	1.0 J,B	8.6	ng/L	SW846 8270C SIM
E3FBD-081803 08/18/03 12:10 004				
Fluoranthene	1.6 J	4.6	ng/L	SW846 8270C SIM
Naphthalene	1.5 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.1 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	1.2 J	4.2	ng/L	SW846 8270C SIM
E2-081803 08/18/03 11:25 005				
2,3-Dihydroindene	1.2 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	1.1 J	4.6	ng/L	SW846 8270C SIM
Naphthalene	1.5 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.0 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	1.4 J	4.2	ng/L	SW846 8270C SIM
Quinoline	1.4 J	9.0	ng/L	SW846 8270C SIM
E13-081803 08/18/03 11:00 006				
Acenaphthene	43	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	7.6	4.8	ng/L	SW846 8270C SIM
Benzo(a)anthracene	1.0 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	1.0 J	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	1.4 J	4.1	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	0.96 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	1.0 J	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	1.0 J	4.3	ng/L	SW846 8270C SIM
Chrysene	1.5 J	5.6	ng/L	SW846 8270C SIM
Dibenzothiophene	1.3 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	12	5.0	ng/L	SW846 8270C SIM
Fluoranthene	3.7 J	4.6	ng/L	SW846 8270C SIM
Fluorene	13	4.1	ng/L	SW846 8270C SIM
Indole	1.6 J	4.7	ng/L	SW846 8270C SIM
Naphthalene	1.4 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.0 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	2.9 J	4.2	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H190227

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
E7-081803 08/18/03 10:20 007				
Acenaphthene	7.1	5.7	ng/L	SW846 8270C SIM
Acridine	4.2 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	1.5 J	5.2	ng/L	SW846 8270C SIM
2,3-Dihydroindene	2.8 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	1.0 J	4.6	ng/L	SW846 8270C SIM
Indene	1.8 J	4.7	ng/L	SW846 8270C SIM
Naphthalene	2.0 J,B	8.6	ng/L	SW846 8270C SIM
Quinoline	1.8 J	9.0	ng/L	SW846 8270C SIM
E15-081803 08/18/03 10:40 008				
Acenaphthene	2.2 J	5.7	ng/L	SW846 8270C SIM
Fluoranthene	1.4 J	4.6	ng/L	SW846 8270C SIM
Naphthalene	1.8 J,B	8.6	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3H190227

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3H190227

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H190227

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FWJH9	001	E3-081803	08/18/03	11:45
FWJJL	002	E3D-081803	08/18/03	11:50
FWJJM	003	E3FB-081803	08/18/03	12:05
FWJJP	004	E3FBD-081803	08/18/03	12:10
FWJJQ	005	E2-081803	08/18/03	11:25
FWJJV	006	E13-081803	08/18/03	11:00
FWJJW	007	E7-081803	08/18/03	10:20
FWJJX	008	E15-081803	08/18/03	10:40

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: E3-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-001 **Work Order #...:** FWJH91AA **Matrix.....:** WG
Date Sampled...: 08/18/03 **Date Received..:** 08/19/03
Prep Date.....: 08/22/03 **Analysis Date..:** 09/28/03
Prep Batch #...: 3234377 **Analysis Time..:** 17:48
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.1 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	37	(30 - 118)
Fluorene d-10	34 *	(41 - 162)
Naphthalene-d8	50	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: E3D-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-002 **Work Order #...:** FWJJL1AA **Matrix.....:** WG
Date Sampled...: 08/18/03 **Date Received..:** 08/19/03
Prep Date.....: 08/22/03 **Analysis Date..:** 09/28/03
Prep Batch #...: 3234377 **Analysis Time..:** 19:40
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.0 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(30 - 118)
Fluorene d-10	29 *	(41 - 162)
Naphthalene-d8	39	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: E3FB-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-003 **Work Order #...:** FWJJM1AA **Matrix.....:** WG
Date Sampled...: 08/18/03 **Date Received..:** 08/19/03
Prep Date.....: 08/22/03 **Analysis Date..:** 09/28/03
Prep Batch #...: 3234377 **Analysis Time..:** 20:17
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(30 - 118)
Fluorene d-10	26 *	(41 - 162)
Naphthalene-d8	37	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: E3FBD-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-004	**Work Order #...:** FWJJP1AA	**Matrix.....:** WG	
Date Sampled...: 08/18/03	**Date Received..:** 08/19/03		
Prep Date.....: 08/22/03	**Analysis Date..:** 09/26/03		
Prep Batch #...: 3234377	**Analysis Time..:** 21:04		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.6 J**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.5 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.1 J,B**	**6.3**	**ng/L**
Pyrene	**1.2 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	65	(30 - 118)
Fluorene d-10	45	(41 - 162)
Naphthalene-d8	53	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: E2-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-005	**Work Order #...:** FWJJQ1AA	**Matrix.....:** WG
Date Sampled...: 08/18/03	**Date Received..:** 08/19/03	
Prep Date.....: 08/22/03	**Analysis Date..:** 09/28/03	
Prep Batch #...: 3234377	**Analysis Time..:** 20:54	
Dilution Factor: 1		
	Method.....: SW846 8270C SIM	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**1.2 J**	**5.0**	**ng/L**
Fluoranthene	**1.1 J**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.5 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.0 J,B**	**6.3**	**ng/L**
Pyrene	**1.4 J**	**4.2**	**ng/L**
Quinoline	**1.4 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	43	(30 - 118)
Fluorene d-10	40 *	(41 - 162)
Naphthalene-d8	57	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: E13-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-006	**Work Order #...:** FWJJV1AA	**Matrix.....:** WG	
Date Sampled...: 08/18/03	**Date Received..:** 08/19/03		
Prep Date.....: 08/22/03	**Analysis Date..:** 09/26/03		
Prep Batch #...: 3234377	**Analysis Time..:** 22:18		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**43**	**5.7**	**ng/L**
Acenaphthylene	**7.6**	**4.8**	**ng/L**
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	**1.0 J**	**4.3**	**ng/L**
Benzo(b)fluoranthene	**1.0 J**	**4.7**	**ng/L**
Benzo(k)fluoranthene	**1.4 J**	**4.1**	**ng/L**
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**0.96 J**	**6.2**	**ng/L**
Benzo(a)pyrene	**1.0 J**	**2.5**	**ng/L**
Benzo(e)pyrene	**1.0 J**	**4.3**	**ng/L**
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	**1.5 J**	**5.6**	**ng/L**
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	**1.3 J**	**4.1**	**ng/L**
2,3-Dihydroindene	**12**	**5.0**	**ng/L**
Fluoranthene	**3.7 J**	**4.6**	**ng/L**
Fluorene	**13**	**4.1**	**ng/L**
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**1.6 J**	**4.7**	**ng/L**
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.4 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.0 J,B**	**6.3**	**ng/L**
Pyrene	**2.9 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	33	(30 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	51	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: E7-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-007 Work Order #...: FWJJW1AA Matrix.....: WG
Date Sampled...: 08/18/03 Date Received..: 08/19/03
Prep Date.....: 08/22/03 Analysis Date..: 09/28/03
Prep Batch #...: 3234377 Analysis Time..: 21:32
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**7.1**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**4.2 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**1.5 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**2.8 J**	**5.0**	**ng/L**
Fluoranthene	**1.0 J**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	**1.8 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**2.0 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	**1.8 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	46	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	57	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: E15-081803

GC/MS Semivolatiles

Lot-Sample #...: D3H190227-008	**Work Order #...:** FWJJX1AA	**Matrix.....:** WG	
Date Sampled...: 08/18/03	**Date Received..:** 08/19/03		
Prep Date.....: 08/22/03	**Analysis Date..:** 09/28/03		
Prep Batch #...: 3234377	**Analysis Time..:** 22:09		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**2.2 J**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.4 J**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.8 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	60	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

QC DATA ASSOCIATION SUMMARY

D3H190227

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3234377	3234159
002	WG	SW846 8270C SIM		3234377	3234159
003	WG	SW846 8270C SIM		3234377	3234159
004	WG	SW846 8270C SIM		3234377	3234159
005	WG	SW846 8270C SIM		3234377	3234159
006	WG	SW846 8270C SIM		3234377	3234159
007	WG	SW846 8270C SIM		3234377	3234159
008	WG	SW846 8270C SIM		3234377	3234159

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H190227
MB Lot-Sample #: D3H220000-377

Work Order #...: FWTLF1AA

Prep Date.....: 08/22/03
Prep Batch #...: 3234377

Matrix.....: WATER

Analysis Time..: 16:32

Analysis Date..: 09/28/03
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	**1.2 J**	**8.6**	**ng/L**	**SW846 8270C SIM**
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	**1.3 J**	**6.3**	**ng/L**	**SW846 8270C SIM**
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(30 - 118)
Fluorene d-10	29 *	(41 - 162)
Naphthalene-d8	41	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H190227 **Work Order #...:** FWTLF1AA **Matrix.....:** WATER

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H190227	**Work Order #...:**	FWJH91AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H190227-001		FWJH91AD-MSD		
Date Sampled...:	08/18/03	**Date Received..:**	08/19/03		
Prep Date.....:	08/22/03	**Analysis Date..:**	09/28/03		
Prep Batch #...:	3234377	**Analysis Time..:**	18:25		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	14 a,p	**(30 - 150)**	**200**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**37**	**(30 - 132)**			**SW846 8270C SIM**
	55	**(30 - 132)**	**39**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**45**	**(30 - 132)**			**SW846 8270C SIM**
	47	**(30 - 132)**	**3.4**	**(0-50)**	**SW846 8270C SIM**
Indene	**46**	**(30 - 150)**			**SW846 8270C SIM**
	65	**(30 - 150)**	**34**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**49**	**(30 - 150)**			**SW846 8270C SIM**
	62	**(30 - 150)**	**24**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**45**	**(30 - 150)**			**SW846 8270C SIM**
	58	**(30 - 150)**	**20**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**25 a**	**(30 - 150)**			**SW846 8270C SIM**
	54 p	**(30 - 150)**	**72**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	30	(30 - 118)
	55	(30 - 118)
Fluorene d-10	27 *	(41 - 162)
	29 *	(41 - 162)
Naphthalene-d8	39	(30 - 108)
	51	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H190227 **Work Order #...:** FWJH91AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3H190227-001 FWJH91AD-MSD
Date Sampled...: 08/18/03 **Date Received..:** 08/19/03
Prep Date.....: 08/22/03 **Analysis Date..:** 09/28/03
Prep Batch #...: 3234377 **Analysis Time..:** 18:25
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**7.52U**	**0.0**	**ng/L**	**0.0 a**		**SW846 8270C SIM**
	ND	**7.51**	**1.04**	**ng/L**	**14 a,p**	**200**	**SW846 8270C SIM**
Chrysene	**ND**	**7.52**	**2.79**	**ng/L**	**37**		**SW846 8270C SIM**
	ND	**7.51**	**4.13**	**ng/L**	**55**	**39**	**SW846 8270C SIM**
Fluorene	**ND**	**7.52**	**3.40**	**ng/L**	**45**		**SW846 8270C SIM**
	ND	**7.51**	**3.52**	**ng/L**	**47**	**3.4**	**SW846 8270C SIM**
Indene	**ND**	**7.52**	**3.49**	**ng/L**	**46**		**SW846 8270C SIM**
	ND	**7.51**	**4.91**	**ng/L**	**65**	**34**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**7.52**	**3.66**	**ng/L**	**49**		**SW846 8270C SIM**
	ND	**7.51**	**4.66**	**ng/L**	**62**	**24**	**SW846 8270C SIM**
Naphthalene	**1.1**	**7.52**	**4.46**	**ng/L**	**45**		**SW846 8270C SIM**
	1.1	**7.51**	**5.42**	**ng/L**	**58**	**20**	**SW846 8270C SIM**
Quinoline	**ND**	**7.52**	**1.91**	**ng/L**	**25 a**		**SW846 8270C SIM**
	ND	**7.51**	**4.05**	**ng/L**	**54 p**	**72**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	30	(30 - 118)
	55	(30 - 118)
Fluorene d-10	27 *	(41 - 162)
	29 *	(41 - 162)
Naphthalene-d8	39	(30 - 108)
	51	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

Chain of Custody Record

2.8° KB 8/19/03

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/18/03	Chain of Custody Number: 289203
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924 2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Same	Lab Contact: Brian Stringa	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT-5	Special Instructions/ Conditions of Receipt
E3-081803	8/18/03	1145		X			6						X	PAH PPT-5
E3D-081803	↓	1150		↓			↓						↓	

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [ ] Disposal By Lab [ ] Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other _____

QC Requirements (Specify):

1. Relinquished By: [signature]	Date: 8/18/03	Time: 1600	1. Received By: Jason Zindell	Date: 8/19/03	Time: 0830
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample: PINK - Field Copy

Chain of Custody Record

2.6° KH
8/19/03

SEVERN TRENT **STL**
Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/18/03	Chain of Custody Number: 289202
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Sawe	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT-5	Special Instructions/ Conditions of Receipt
E3MS-081803	8/18/03	1155		X			6						X	PAH PPT-5
E3MSD-081803	↓	1200		↓			↓						↓	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	8/18/03	1600	1. Received By: [signature]	8/19/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

3.2° NB 8/19/03

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/18/03	Chain of Custody Number: 289204
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924-2537	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Same	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT-5	Special Instructions/ Conditions of Receipt
E3FB-081803	8/18/03	1205		X			6						X	PAH PPT-5
E3FBD-081803	↓	1210		↓			↓						↓	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

1. Relinquished By: [signature]	Date: 8/18/03	Time: 1600	1. Received By: [signature]	Date: 8/19/03	Time: 0830
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

2.1°
8/19/03

SEVERN TRENT **STL**
Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/18/03	Chain of Custody Number: 289205
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924 2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT-5	Special Instructions/ Conditions of Receipt
E2-081803	8/18/03	1125		X			6						X	PAH PPT-5
E13-081803	↓	1100		↓			↓						↓	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: A. Tovar	8/18/03	1600	1. Received By: Jason Brindell	8/19/03	0830
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

[redacted]

Chain of Custody Record

3.2° WB 8/19/03

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/18/03	Chain of Custody Number: 150758
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Dave	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT-5	Special Instructions/ Conditions of Receipt
E7-081803	8/18/03	1020	X				6						X	PAH PPT-5
E15-081803	↓	1040	↓				↓						↓	

Possible Hazard Identification: ☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	8/18/03	1600	1. Received By: [signature]	8/19/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3H190227 (R)

March 4, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of eight aqueous samples for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on August 18, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3H190227.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

E3-081803
E3D-081803
E3FB-081803
E3FBD-081803
E2-081803
E13-081803
E7-081803
E15-081803

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results

- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.1°C and 3.2°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, prep batch 3234377. Naphthalene and Phenanthrene were detected in the method blank. Target analytes were also detected in the duplicate field blank sample. The analytical results for this data package were flagged by the laboratory due to the method blank contamination.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were low in four of the seven samples for fluorene-d10 and in one sample for chrysene-d12. Fluorene-d10 was also low in the Method Blank and MS/MSD. All other surrogates were in control of the QAPP limits.

LCS Results

The LCS could not be analyzed due to a cracked vial at the laboratory. The sample had evaporated. The client was notified.

MS/MSD Results

MS/MSD analyses were performed on sample E3-081203. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for benzo(e)pyrene was 0% for the MS and 14% for the MSD. The RPDs was outside of the acceptable range for this compound (200). Quinoline had lower recoveries in the MS. The MSD for quinoline was higher (54%), thus causing the RPD to outside of the control limits. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	0/14	200	30-150/0-50
Quinoline	25/ok	72	30-150/0-50

Field Duplicate Results

Sample E3-081803 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for the detected analyte. Only one out of 31 compounds was detected with a RPD range of 9.5%.

Quantitation Limits and Sample Results

There were no samples analyzed using a dilution.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

S

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3H200258

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

October 6, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3H200258

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Nine samples were received under chain of custody on August 20, 2003. The samples were received in good condition at temperatures of 2.8, 3.0, 2.3, 2.2, 3.4, and 3.2°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The surrogate recovery of Fluorene-d10 was below the 30% threshold for samples D3H200258-001, 006, and the MS of sample 003. The surrogate recovery of Chrysene-d12 was below the 30% threshold for samples D3H200258-001, 003, 004, 008, 009, and the MS of sample 003.

The internal standard Perylene-d12 was outside control limits in sample D3H200258-009. Matrix effects were obvious; the chromatogram reveals background interference.

The analytes Benzo(a)anthracene, Chyrsene, Fluoranthene, Phenanthrene, and Pyrene were detected in the Method Blank for QC batch 3236096 below the project-specific reporting limits. Associated sample results are flagged "B".

The analyte Naphthalene was detected in the Method Blank for QC batch 3237670 below the project-specific reporting limits. Associated sample results are flagged "B".

The Laboratory Control Sample recovery for Quinoline was below the lower control limit for QC batches 3236096 and 3237670. Quinoline historically performs poorly and it was recovered within control limits in the MS/MSD in QC batch 3236096. No sample volume remains for re-extractions.

The MS/MSD performed on sample D3H200258-003 demonstrated recoveries that were below the control limits for Benzo(e)pyrene, Chrysene, and Fluorene. In addition the relative percent difference (RPD) was outside control limits for Chrysene and Quinoline.

The method required MS/MSD could not be performed for QC batch 3237670 due to insufficient sample volume.

Detections in the Field Blank and Field Blank Duplicate (FBD) are less than the reporting limit except Dibenzothiophene in the FBD.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3H200258	
ANALYSIS:	SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	62	56
MB Surrogates	6	6
LCS	14	12
LCS Surrogates	6	6
FB/FBD	62	61
MS	7	4
MS Surrogates	3	1
MSD	7	6
MSD Surrogates	3	3
MS/MSD RPD	7	5
Sample/Dup. RPD	31	31
Sample Surrogates	27	20
Samples and QC Internal Standard Area	45	44
TOTAL	**280**	**250**
% Completeness	**91.1%**	

*A MS/MSD was performed on sample SLP6 08-19-03.

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3H200258					
Sample: SLP6 08-19-03		DUP: SLP6D 08-19-03			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	60	Acenaphthene	48	22.2	
Acenaphthylene	10	Acenaphthylene	9.9	1.0	
Acridine	4.9	Acridine	ND	NC	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	1.2	Benzo(b)fluoranthene	ND	NC	
Benzo(k)fluoranthene	1.2	Benzo(k)fluoranthene	ND	NC	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	2.4	Benzo(b)thiophene	1.9	23.3	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	1.5	Carbazole	1.4	6.9	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	0.98	Dibenzofuran	ND	NC	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	48	2,3-Dihydroindene	41	15.7	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	3.7	Fluorene	3.0	20.9	
Indene	2.2	Indene	2.0	9.5	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	2.3	Naphthalene	2.0	14.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	1.0	Phenanthrene	1.1	9.5	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	2.7	NC	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3H200258

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SLP11 08-19-03 08/19/03 08:55 001				
Benzo(a)anthracene	5.4 B	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	9.5	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	9.5	4.1	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	3.8 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	5.4	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	4.0 J	4.3	ng/L	SW846 8270C SIM
Carbazole	1.4 J	3.8	ng/L	SW846 8270C SIM
Chrysene	8.1 B	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	1.1 J	5.9	ng/L	SW846 8270C SIM
2,3-Dihydroindene	1.3 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	11 B	4.6	ng/L	SW846 8270C SIM
Indene	1.7 J	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	2.9 J	5.4	ng/L	SW846 8270C SIM
Naphthalene	4.3 J	8.6	ng/L	SW846 8270C SIM
Perylene	1.9 J	3.3	ng/L	SW846 8270C SIM
Phenanthrene	1.5 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	10 B	4.2	ng/L	SW846 8270C SIM
SLP6 08-19-03 08/19/03 10:15 003				
Acenaphthene	60	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	10	4.8	ng/L	SW846 8270C SIM
Acridine	4.9 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	1.2 J	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	1.2 J	4.1	ng/L	SW846 8270C SIM
Benzo(b)thiophene	2.4 J	5.2	ng/L	SW846 8270C SIM
Carbazole	1.5 J	3.8	ng/L	SW846 8270C SIM
Dibenzofuran	0.98 J	5.7	ng/L	SW846 8270C SIM
2,3-Dihydroindene	48	5.0	ng/L	SW846 8270C SIM
Fluorene	3.7 J	4.1	ng/L	SW846 8270C SIM
Indene	2.2 J	4.7	ng/L	SW846 8270C SIM
Naphthalene	2.3 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.0 J,B	6.3	ng/L	SW846 8270C SIM
SLP6D 08-19-03 08/19/03 10:20 004				
Acenaphthene	48	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	9.9	4.8	ng/L	SW846 8270C SIM
Benzo(b)thiophene	1.9 J	5.2	ng/L	SW846 8270C SIM
Carbazole	1.4 J	3.8	ng/L	SW846 8270C SIM
2,3-Dihydroindene	41	5.0	ng/L	SW846 8270C SIM
Fluorene	3.0 J	4.1	ng/L	SW846 8270C SIM
Indene	2.0 J	4.7	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H200258

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SLP6D 08-19-03 08/19/03 10:20 004				
Naphthalene	2.0 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.1 J,B	6.3	ng/L	SW846 8270C SIM
Quinoline	2.7 J	9.0	ng/L	SW846 8270C SIM
SLP12 08-19-03 08/19/03 10:45 005				
Naphthalene	1.8 J	8.6	ng/L	SW846 8270C SIM
SLP12FB 08-19-03 08/19/03 10:50 006				
Naphthalene	1.2 J	8.6	ng/L	SW846 8270C SIM
SLP12FBD 08-19-03 08/19/03 10:55 007				
Acridine	5.7 J	6.2	ng/L	SW846 8270C SIM
Anthracene	1.0 J	4.2	ng/L	SW846 8270C SIM
Dibenzothiophene	9.6	4.1	ng/L	SW846 8270C SIM
Indole	2.6 J	4.7	ng/L	SW846 8270C SIM
Naphthalene	1.1 J	8.6	ng/L	SW846 8270C SIM
W401-081903 08/19/03 09:10 008				
Acenaphthene	29	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	2.0 J	4.8	ng/L	SW846 8270C SIM
Acridine	3.5 J	6.2	ng/L	SW846 8270C SIM
Anthracene	1.0 J	4.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	1.2 J	5.2	ng/L	SW846 8270C SIM
2,3-Dihydroindene	3.1 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	8.7 B	4.6	ng/L	SW846 8270C SIM
Indene	1.0 J	4.7	ng/L	SW846 8270C SIM
Indole	3.9 J	4.7	ng/L	SW846 8270C SIM
Naphthalene	1.8 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.5 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	7.2 B	4.2	ng/L	SW846 8270C SIM
W48-081903 08/19/03 10:30 009				
Acenaphthene	62	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	1.7 J	4.8	ng/L	SW846 8270C SIM
Acridine	12	6.2	ng/L	SW846 8270C SIM
Anthracene	3.7 J	4.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	6.3	5.2	ng/L	SW846 8270C SIM
Carbazole	1.9 J	3.8	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H200258

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W48-081903 08/19/03 10:30 009				
Dibenzofuran	1.2 J	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	2.8 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	10	5.0	ng/L	SW846 8270C SIM
Fluoranthene	1.5 J	4.6	ng/L	SW846 8270C SIM
Fluorene	3.9 J	4.1	ng/L	SW846 8270C SIM
Indene	14	4.7	ng/L	SW846 8270C SIM
Indole	3.4 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.6 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	2.1 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	3.9 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.3 J	6.3	ng/L	SW846 8270C SIM
Pyrene	2.8 J	4.2	ng/L	SW846 8270C SIM
Quinoline	1.9 J	9.0	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3H200258

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3H200258

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H200258

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FWL4X	001	SLP11 08-19-03	08/19/03	08:55
FWL43	002	SLP13 08-19-03	08/19/03	09:10
FWL47	003	SLP6 08-19-03	08/19/03	10:15
FWL5L	004	SLP6D 08-19-03	08/19/03	10:20
FWL5M	005	SLP12 08-19-03	08/19/03	10:45
FWL5N	006	SLP12FB 08-19-03	08/19/03	10:50
FWL57	007	SLP12FBD 08-19-03	08/19/03	10:55
FWL6C	008	W401-081903	08/19/03	09:10
FWL6K	009	W48-081903	08/19/03	10:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP11 08-19-03

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-001 Work Order #...: FWL4X1AA Matrix.....: WG
Date Sampled...: 08/19/03 Date Received..: 08/20/03
Prep Date.....: 08/24/03 Analysis Date..: 09/28/03
Prep Batch #...: 3236096 Analysis Time..: 22:47
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	**5.4 B**	**4.3**	**ng/L**
Benzo(b)fluoranthene	**9.5**	**4.7**	**ng/L**
Benzo(k)fluoranthene	**9.5**	**4.1**	**ng/L**
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**3.8 J**	**6.2**	**ng/L**
Benzo(a)pyrene	**5.4**	**2.5**	**ng/L**
Benzo(e)pyrene	**4.0 J**	**4.3**	**ng/L**
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	**1.4 J**	**3.8**	**ng/L**
Chrysene	**8.1 B**	**5.6**	**ng/L**
Dibenzo(a,h)anthracene	**1.1 J**	**5.9**	**ng/L**
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**1.3 J**	**5.0**	**ng/L**
Fluoranthene	**11 B**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	**1.7 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	**2.9 J**	**5.4**	**ng/L**
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**4.3 J**	**8.6**	**ng/L**
Perylene	**1.9 J**	**3.3**	**ng/L**
Phenanthrene	**1.5 J,B**	**6.3**	**ng/L**
Pyrene	**10 B**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	21 *	(30 - 118)
Fluorene d-10	23 *	(41 - 162)
Naphthalene-d8	30	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP13 08-19-03

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-002 **Work Order #...:** FWL431AA **Matrix.....:** WG
Date Sampled...: 08/19/03 **Date Received..:** 08/20/03
Prep Date.....: 08/24/03 **Analysis Date..:** 09/28/03
Prep Batch #...: 3236096 **Analysis Time..:** 23:25
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(30 - 118)
Fluorene d-10	31 *	(41 - 162)
Naphthalene-d8	45	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP6 08-19-03

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-003 Work Order #...: FWL471AA Matrix.....: WG
Date Sampled...: 08/19/03 Date Received..: 08/20/03
Prep Date.....: 08/24/03 Analysis Date..: 09/29/03
Prep Batch #...: 3236096 Analysis Time..: 00:03
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**60**	**5.7**	**ng/L**
Acenaphthylene	**10**	**4.8**	**ng/L**
Acridine	**4.9 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	**1.2 J**	**4.7**	**ng/L**
Benzo(k)fluoranthene	**1.2 J**	**4.1**	**ng/L**
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**2.4 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**1.5 J**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**0.98 J**	**5.7**	**ng/L**
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**48**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	**3.7 J**	**4.1**	**ng/L**
Indene	**2.2 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**2.3 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.0 J,B**	**6.3**	**ng/L**
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	29 *	(30 - 118)
Fluorene d-10	34 *	(41 - 162)
Naphthalene-d8	48	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP6D 08-19-03

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-004 Work Order #...: FWL5L1AA Matrix.....: WG
Date Sampled...: 08/19/03 Date Received..: 08/20/03
Prep Date.....: 08/24/03 Analysis Date..: 09/29/03
Prep Batch #...: 3236096 Analysis Time..: 01:57
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**48**	**5.7**	**ng/L**
Acenaphthylene	**9.9**	**4.8**	**ng/L**
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**1.9 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**1.4 J**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**41**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	**3.0 J**	**4.1**	**ng/L**
Indene	**2.0 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**2.0 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.1 J,B**	**6.3**	**ng/L**
Pyrene	ND	4.2	ng/L
Quinoline	**2.7 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	30 *	(41 - 162)
Naphthalene-d8	46	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP12 08-19-03

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-005 **Work Order #...:** FWL5M1AA **Matrix.....:** WG
Date Sampled...: 08/19/03 **Date Received..:** 08/20/03
Prep Date.....: 08/24/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3236096 **Analysis Time..:** 02:35
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.8 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(30 - 118)
Fluorene d-10	30 *	(41 - 162)
Naphthalene-d8	52	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP12FB 08-19-03

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-006	**Work Order #...:** FWL5N1AA	**Matrix.....:** WG	
Date Sampled...: 08/19/03	**Date Received..:** 08/20/03		
Prep Date.....: 08/24/03	**Analysis Date..:** 09/29/03		
Prep Batch #...: 3236096	**Analysis Time..:** 03:12		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.2 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	81	(30 - 118)
Fluorene d-10	27 *	(41 - 162)
Naphthalene-d8	41	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP12FBD 08-19-03

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-007	**Work Order #...:** FWL571AA	**Matrix.....:** WG	
Date Sampled...: 08/19/03	**Date Received..:** 08/20/03		
Prep Date.....: 08/24/03	**Analysis Date..:** 09/27/03		
Prep Batch #...: 3236096	**Analysis Time..:** 05:14		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	**5.7 J**	**6.2**	**ng/L**
Anthracene	**1.0 J**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	**9.6**	**4.1**	**ng/L**
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**2.6 J**	**4.7**	**ng/L**
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.1 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(30 - 118)
Fluorene d-10	34 *	(41 - 162)
Naphthalene-d8	40	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W401-081903

GC/MS Semivolatiles

Lot-Sample #...: D3H200258-008 Work Order #...: FWL6C1AA Matrix.....: WG
Date Sampled...: 08/19/03 Date Received..: 08/20/03
Prep Date.....: 08/24/03 Analysis Date..: 09/29/03
Prep Batch #...: 3236096 Analysis Time..: 19:34
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**29**	**5.7**	**ng/L**
Acenaphthylene	**2.0 J**	**4.8**	**ng/L**
Acridine	**3.5 J**	**6.2**	**ng/L**
Anthracene	**1.0 J**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**1.2 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**3.1 J**	**5.0**	**ng/L**
Fluoranthene	**8.7 B**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	**1.0 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**3.9 J**	**4.7**	**ng/L**
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.8 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.5 J,B**	**6.3**	**ng/L**
Pyrene	**7.2 B**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	23 *	(30 - 118)
Fluorene d-10	59	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: W48-081903

GC/MS Semivolatiles

Lot-Sample #...:	D3H200258-009	**Work Order #...:**	FWL6K1AA	**Matrix.....:**	WG
Date Sampled...:	08/19/03	**Date Received..:**	08/20/03		
Prep Date.....:	08/25/03	**Analysis Date..:**	10/01/03		
Prep Batch #...:	3237670	**Analysis Time..:**	20:59		
Dilution Factor:	1				
		Method.....:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**62**	**5.7**	**ng/L**
Acenaphthylene	**1.7 J**	**4.8**	**ng/L**
Acridine	**12**	**6.2**	**ng/L**
Anthracene	**3.7 J**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**6.3**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**1.9 J**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**1.2 J**	**5.7**	**ng/L**
Dibenzothiophene	**2.8 J**	**4.1**	**ng/L**
2,3-Dihydroindene	**10**	**5.0**	**ng/L**
Fluoranthene	**1.5 J**	**4.6**	**ng/L**
Fluorene	**3.9 J**	**4.1**	**ng/L**
Indene	**14**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**3.4 J**	**4.7**	**ng/L**
2-Methylnaphthalene	**1.6 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**2.1 J**	**5.6**	**ng/L**
Naphthalene	**3.9 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.3 J**	**6.3**	**ng/L**
Pyrene	**2.8 J**	**4.2**	**ng/L**
Quinoline	**1.9 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	14 *	(30 - 118)
Fluorene d-10	98	(41 - 162)
Naphthalene-d8	49	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

QC DATA ASSOCIATION SUMMARY

D3H200258

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3236096	3236052
002	WG	SW846 8270C SIM		3236096	3236052
003	WG	SW846 8270C SIM		3236096	3236052
004	WG	SW846 8270C SIM		3236096	3236052
005	WG	SW846 8270C SIM		3236096	3236052
006	WG	SW846 8270C SIM		3236096	3236052
007	WG	SW846 8270C SIM		3236096	3236052
008	WG	SW846 8270C SIM		3236096	3236052
009	WG	SW846 8270C SIM		3237670	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FWXL21AA **Matrix.....:** WATER
MB Lot-Sample #: D3H240000-096
Prep Date.....: 08/24/03 **Analysis Time..:** 17:10
Analysis Date..: 09/28/03 **Prep Batch #...:** 3236096
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	**2.6 J**	**4.3**	**ng/L**	**SW846 8270C SIM**
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	**1.8 J**	**5.6**	**ng/L**	**SW846 8270C SIM**
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	**2.9 J**	**4.6**	**ng/L**	**SW846 8270C SIM**
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	**2.0 J**	**6.3**	**ng/L**	**SW846 8270C SIM**
Pyrene	**2.2 J**	**4.2**	**ng/L**	**SW846 8270C SIM**
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(30 - 118)
Fluorene d-10	30 *	(41 - 162)
Naphthalene-d8	37	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FWXL21AA **Matrix.....:** WATER

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FW09G1AA **Matrix.....:** WATER
MB Lot-Sample #: D3H250000-670
Prep Date.....: 08/25/03 **Analysis Time..:** 20:21
Analysis Date..: 10/01/03 **Prep Batch #...:** 3237670
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	1.1 J	**8.6**	**ng/L**	**SW846 8270C SIM**
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(30 - 118)
Fluorene d-10	44	(41 - 162)
Naphthalene-d8	59	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FWXL21AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H240000-096
Prep Date.....: 08/24/03 **Analysis Date..:** 09/26/03
Prep Batch #...: 3236096 **Analysis Time..:** 17:17
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**63**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**59**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**62**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**52**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**55**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**59**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**0.0 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FWXL21AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H240000-096
Prep Date.....: 08/24/03 **Analysis Date..:** 09/26/03
Prep Batch #...: 3236096 **Analysis Time..:** 17:17
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**6.35**	**ng/L**	**63**	**SW846 8270C S**
Chrysene	**10.0**	**5.88**	**ng/L**	**59**	**SW846 8270C S**
Fluorene	**10.0**	**6.19**	**ng/L**	**62**	**SW846 8270C S**
Indene	**10.0**	**5.22**	**ng/L**	**52**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**5.46**	**ng/L**	**55**	**SW846 8270C S**
Naphthalene	**10.0**	**5.92**	**ng/L**	**59**	**SW846 8270C S**
Quinoline	**10.0**	**0.0 a**	**ng/L**	**0.0**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FW09G1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H250000-670
Prep Date.....: 08/25/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3237670 **Analysis Time..:** 17:04
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**61**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**42**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**49**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**50**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**51**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**62**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**0.0 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(30 - 118)
Fluorene d-10	38 *	(41 - 162)
Naphthalene-d8	52	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FW09G1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H250000-670
Prep Date.....: 08/25/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3237670 **Analysis Time..:** 17:04
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**6.09**	**ng/L**	**61**	**SW846 8270C S**
Chrysene	**10.0**	**4.20**	**ng/L**	**42**	**SW846 8270C S**
Fluorene	**10.0**	**4.94**	**ng/L**	**49**	**SW846 8270C S**
Indene	**10.0**	**5.04**	**ng/L**	**50**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**5.10**	**ng/L**	**51**	**SW846 8270C S**
Naphthalene	**10.0**	**6.23**	**ng/L**	**62**	**SW846 8270C S**
Quinoline	**10.0**	**0.0 a**	**ng/L**	**0.0**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(30 - 118)
Fluorene d-10	38 *	(41 - 162)
Naphthalene-d8	52	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H200258	**Work Order #...:**	FWL471AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H200258-003		FWL471AD-MSD		
Date Sampled...:	08/19/03	**Date Received..:**	08/20/03		
Prep Date.....:	08/24/03	**Analysis Date..:**	09/29/03		
Prep Batch #...:	3236096	**Analysis Time..:**	00:41		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a	**(30 - 150)**	**0.0**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**22 a**	**(30 - 132)**			**SW846 8270C SIM**
	49 p	**(30 - 132)**	**79**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**20 a**	**(30 - 132)**			**SW846 8270C SIM**
	34	**(30 - 132)**	**20**	**(0-50)**	**SW846 8270C SIM**
Indene	**46**	**(30 - 150)**			**SW846 8270C SIM**
	45	**(30 - 150)**	**1.2**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**54**	**(30 - 150)**			**SW846 8270C SIM**
	53	**(30 - 150)**	**3.1**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**45**	**(30 - 150)**			**SW846 8270C SIM**
	39	**(30 - 150)**	**6.0**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**77**	**(30 - 150)**			**SW846 8270C SIM**
	36 p	**(30 - 150)**	**68**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	21 *	(30 - 118)
	46	(30 - 118)
Fluorene d-10	28 *	(41 - 162)
	35 *	(41 - 162)
Naphthalene-d8	44	(30 - 108)
	38	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H200258 **Work Order #...:** FWL471AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3H200258-003 FWL471AD-MSD
Date Sampled...: 08/19/03 **Date Received..:** 08/20/03
Prep Date.....: 08/24/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3236096 **Analysis Time..:** 00:41
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**7.18**	**0.0**	**ng/L**	**0.0 a**		**SW846 8270C SIM**
	ND	**7.49**	**0.0**	**ng/L**	**0.0 a**	**0.0**	**SW846 8270C SIM**
Chrysene	**ND**	**7.18**	**1.60**	**ng/L**	**22 a**		**SW846 8270C SIM**
	ND	**7.49**	**3.68**	**ng/L**	**49 p**	**79**	**SW846 8270C SIM**
Fluorene	**3.7**	**7.18**	**5.15**	**ng/L**	**20 a**		**SW846 8270C SIM**
	3.7	**7.49**	**6.30**	**ng/L**	**34**	**20**	**SW846 8270C SIM**
Indene	**2.2**	**7.18**	**5.49**	**ng/L**	**46**		**SW846 8270C SIM**
	2.2	**7.49**	**5.55**	**ng/L**	**45**	**1.2**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**7.18**	**3.87**	**ng/L**	**54**		**SW846 8270C SIM**
	ND	**7.49**	**3.99**	**ng/L**	**53**	**3.1**	**SW846 8270C SIM**
Naphthalene	**2.3**	**7.18**	**5.51**	**ng/L**	**45**		**SW846 8270C SIM**
	2.3	**7.49**	**5.20**	**ng/L**	**39**	**6.0**	**SW846 8270C SIM**
Quinoline	**ND**	**7.18**	**5.55**	**ng/L**	**77**		**SW846 8270C SIM**
	ND	**7.49**	**2.73**	**ng/L**	**36 p**	**68**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	21 *	(30 - 118)
	46	(30 - 118)
Fluorene d-10	28 *	(41 - 162)
	35 *	(41 - 162)
Naphthalene-d8	44	(30 - 108)
	38	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

2.8, 3.0, 2.3, 3.4, 3.2
8/20/03

Chain of Custody Record

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/19/03	Chain of Custody Number: 150759
Address: 5005 Minnetonka Blvd.	Telephone Number (Area Code)/Fax Number: 952-924-2558	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN. / Zip Code: 55416	Site Contact:	Lab Contact:	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT-5
SLP 11 08-19-03	08-19-03	08:55		X			6						X
SLP 13 08-19-03	08-19-03	09:10											X
SLP 6 08-19-03	08-19-03	10:15											X
SLP 6D 08-19-03	08-19-03	10:20											X
SLP 6 MS 08-19-03	08-19-03	10:30											X
SLP 6 MSD 08-19-03	08-19-03	10:35											X
SLP 12 08-19-03	08-19-03	10:45											X
SLP 12FB 08-19-03	08-19-03	10:50											X
SLP 12FBD 08-19-03	08-19-03	10:55											X

Special Instructions/ Conditions of Receipt: PAH PPT-5

Time not noted on FB & FBD samples

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [ ] Disposal By Lab [ ] Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By	08-19-03	12:00PM	1. Received By	8/20/03	0900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT SERVICES — **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/19/03	Chain of Custody Number: 150761
Address: 3-753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Dave	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT's
W401-081903	8/19/03	910		X			6						X
W48-081903	↓	1030		↓			↓						↓

Special Instructions/ Conditions of Receipt: PAH PPT-5

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	8/19/03	1330	1. Received By: [signature]	8/20/03	0900
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3H200258 (S)

March 4, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of nine aqueous samples for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on August 19, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3H200258.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

SLP11-081903
SLP13-081903
SLP6-081903
SLP6D-081903
SLP12-081903
SLP12FB-081903
SLP12FBD-081903
W401-081903
W48-081903

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results

- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.2°C and 3.4°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, prep batch 3236096. There were five compounds detected in the method blank. Benzo(a)anthracene, chrysene, fluoranthene, pyrene, and phenanthrene were all detected in the method blank. Target analytes were also detected in the field blank samples submitted with this data package. The analytical results for this data package were flagged by the laboratory due to the method blank contamination.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were low in seven of the nine samples for fluorene-d10 and in five samples for chrysene-d12. Fluorene-d10 was also low in the LCS and MS/MSD. All other surrogates were in control of the QAPP limits.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses except for quinoline. Quinoline was not recovered in either of the two LCS samples run.

MS/MSD Results

MS/MSD analyses were performed on sample SLP6-081903. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for benzo(e)pyrene was 0% for the MS and MSD. Chrysene, Fluorene, and Quinoline had lower recoveries to report in the MS and MSD. RPDs for some of the compounds were also out of control. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	0/10	ok	30-150/0-50
Chrysene	22/ok	79	30-132/0-50
Fluorene	20/ok	ok	30-132/0-50
Quinoline	ok/ok	68	30-150/0-50

Field Duplicate Results

Sample SLP6-081903 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for the detected analytes. A total of 14 out of 31 compounds was detected with a RPD range of 1.0% to 23.3%.

Quantitation Limits and Sample Results

There were no samples analyzed using a dilution.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

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SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3H260172

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

October 6, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stl-inc.com

A part of Severn Trent plc

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3H260172

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eight samples were received under chain of custody on August 26, 2003. The samples were received in good condition at temperatures of 3.0, 2.9, 4.2, 3.2, and 4.0°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The surrogate recovery of Fluorene-d10 was below the 30% threshold for the Method Blank. The surrogate recovery of Chrysene-d12 was below the 30% threshold for samples D3H260172-002, 003, 004, 005, and the MS/MSD of sample 001.

The Laboratory Control Sample recovery for Quinoline was below the lower control limit. Quinoline historically performs poorly and it was recovered within control limits in the MS/MSD.

The MS/MSD performed on sample D3H260172-001 demonstrated recoveries that were below the control limits for Benzo(e)pyrene and Chrysene.

Detections in the Field Blank and Field Blank Duplicate are less than the reporting limit.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3H260172	
ANALYSIS:	SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	2
LCS	7	6
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	5
MS Surrogates	3	2
MSD	7	5
MSD Surrogates	3	2
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	24	20
Samples and QC Internal Standard Area	36	36
TOTAL	**224**	**207**
% Completeness	**94.6%**	

*A MS/MSD was performed on sample SLP3 08-25-03.

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3H260172					
Sample: SLP3 08-25-03		DUP: SLP3D 08-25-03			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	2.3	Indole	ND	NC	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3H260172

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SLP3 08-25-03 08/25/03 12:20 001				
Indole	2.3 J	4.7	ng/L	SW846 8270C SIM
W122-082503 08/25/03 17:05 003				
Acenaphthene	2.7 J	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	1.2 J	4.8	ng/L	SW846 8270C SIM
Acridine	33	6.2	ng/L	SW846 8270C SIM
Anthracene	13	4.2	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	2.7 J	4.1	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	2.0 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	1.0 J	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	1.3 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	1.4 J	5.2	ng/L	SW846 8270C SIM
Carbazole	5.0	3.8	ng/L	SW846 8270C SIM
Dibenzofuran	1.6 J	5.7	ng/L	SW846 8270C SIM
2,3-Dihydroindene	5.3	5.0	ng/L	SW846 8270C SIM
Fluoranthene	6.2	4.6	ng/L	SW846 8270C SIM
Fluorene	2.5 J	4.1	ng/L	SW846 8270C SIM
Indene	7.7	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	7.4	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	6.3	5.6	ng/L	SW846 8270C SIM
Naphthalene	14	8.6	ng/L	SW846 8270C SIM
Phenanthrene	6.8	6.3	ng/L	SW846 8270C SIM
Pyrene	19	4.2	ng/L	SW846 8270C SIM
W411-082503 08/25/03 15:35 004				
Acenaphthene	2.2 J	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	1.1 J	4.8	ng/L	SW846 8270C SIM
Anthracene	7.3	4.2	ng/L	SW846 8270C SIM
Carbazole	4.6	3.8	ng/L	SW846 8270C SIM
Dibenzofuran	1.1 J	5.7	ng/L	SW846 8270C SIM
2,3-Dihydroindene	1.6 J	5.0	ng/L	SW846 8270C SIM
Fluoranthene	3.5 J	4.6	ng/L	SW846 8270C SIM
Fluorene	2.0 J	4.1	ng/L	SW846 8270C SIM
Indene	3.3 J	4.7	ng/L	SW846 8270C SIM
Indole	1.3 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	4.7 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	3.8 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	7.8 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	4.5 J	6.3	ng/L	SW846 8270C SIM
Pyrene	8.3	4.2	ng/L	SW846 8270C SIM
Quinoline	1.6 J	9.0	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H260172

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W133-082503 08/25/03 17:35 005				
Acenaphthene	9.2	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	1.2 J	4.8	ng/L	SW846 8270C SIM
Acridine	6.3	6.2	ng/L	SW846 8270C SIM
Anthracene	2.4 J	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	1.7 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	2.0 J	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	1.9 J	4.1	ng/L	SW846 8270C SIM
Benzo(a)pyrene	1.6 J	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	1.7 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	15	5.2	ng/L	SW846 8270C SIM
Biphenyl	3.4 J	5.6	ng/L	SW846 8270C SIM
Carbazole	9.0	3.8	ng/L	SW846 8270C SIM
Chrysene	1.6 J	5.6	ng/L	SW846 8270C SIM
Dibenzofuran	2.1 J	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	9.1	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	23	5.0	ng/L	SW846 8270C SIM
Fluoranthene	4.1 J	4.6	ng/L	SW846 8270C SIM
Fluorene	2.0 J	4.1	ng/L	SW846 8270C SIM
Indene	11	4.7	ng/L	SW846 8270C SIM
Indole	2.3 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	11	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	14	5.6	ng/L	SW846 8270C SIM
Naphthalene	280	8.6	ng/L	SW846 8270C SIM
Perylene	1.1 J	3.3	ng/L	SW846 8270C SIM
Phenanthrene	1.6 J	6.3	ng/L	SW846 8270C SIM
Pyrene	4.1 J	4.2	ng/L	SW846 8270C SIM
Quinoline	2.0 J	9.0	ng/L	SW846 8270C SIM
W412-082503 08/25/03 14:35 006				
Acenaphthene	2.9 J	5.7	ng/L	SW846 8270C SIM
Acridine	33	6.2	ng/L	SW846 8270C SIM
Anthracene	2.7 J	4.2	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	4.8	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	4.2	4.1	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	2.4 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	4.4 J	5.2	ng/L	SW846 8270C SIM
Biphenyl	1.4 J	5.6	ng/L	SW846 8270C SIM
Carbazole	3.9	3.8	ng/L	SW846 8270C SIM
Dibenzofuran	1.1 J	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	3.2 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	5.0	5.0	ng/L	SW846 8270C SIM
Fluoranthene	5.1	4.6	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3H260172

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W412-082503 08/25/03 14:35 006				
Fluorene	2.9 J	4.1	ng/L	SW846 8270C SIM
Indene	6.1	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	5.6 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	5.2 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	14	8.6	ng/L	SW846 8270C SIM
Phenanthrene	15	6.3	ng/L	SW846 8270C SIM
Pyrene	18	4.2	ng/L	SW846 8270C SIM
Quinoline	3.3 J	9.0	ng/L	SW846 8270C SIM
W412FB-082503 08/25/03 14:25 007				
Benzo(a)anthracene	1.2 J	4.3	ng/L	SW846 8270C SIM
1-Methylnaphthalene	0.99 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	2.2 J	8.6	ng/L	SW846 8270C SIM
Pyrene	1.2 J	4.2	ng/L	SW846 8270C SIM
W412FBD-082503 08/25/03 14:30 008				
Naphthalene	1.6 J	8.6	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3H260172

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3H260172

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H260172

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FW15V	001	SLP3 08-25-03	08/25/03	12:20
FW150	002	SLP3D 08-25-03	08/25/03	12:25
FW156	003	W122-082503	08/25/03	17:05
FW16D	004	W411-082503	08/25/03	15:35
FW16F	005	W133-082503	08/25/03	17:35
FW16G	006	W412-082503	08/25/03	14:35
FW16H	007	W412FB-082503	08/25/03	14:25
FW16K	008	W412FBD-082503	08/25/03	14:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP3 08-25-03

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-001 **Work Order #...:** FW15V1AA **Matrix.....:** WG
Date Sampled...: 08/25/03 **Date Received..:** 08/26/03
Prep Date.....: 08/29/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3241187 **Analysis Time..:** 20:48
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**2.3 J**	**4.7**	**ng/L**
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	30	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	54	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP3D 08-25-03

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-002 **Work Order #...:** FW1501AA **Matrix.....:** WG
Date Sampled...: 08/25/03 **Date Received..:** 08/26/03
Prep Date.....: 08/29/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3241187 **Analysis Time..:** 22:40
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	21 *	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	50	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: W122-082503

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-003	**Work Order #...:** FW1561AA	**Matrix.....:** WG	
Date Sampled...: 08/25/03	**Date Received..:** 08/26/03		
Prep Date.....: 08/29/03	**Analysis Date..:** 09/29/03		
Prep Batch #...: 3241187	**Analysis Time..:** 23:18		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**2.7 J**	**5.7**	**ng/L**
Acenaphthylene	**1.2 J**	**4.8**	**ng/L**
Acridine	**33**	**6.2**	**ng/L**
Anthracene	**13**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	**2.7 J**	**4.1**	**ng/L**
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**2.0 J**	**6.2**	**ng/L**
Benzo(a)pyrene	**1.0 J**	**2.5**	**ng/L**
Benzo(e)pyrene	**1.3 J**	**4.3**	**ng/L**
Benzo(b)thiophene	**1.4 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**5.0**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**1.6 J**	**5.7**	**ng/L**
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**5.3**	**5.0**	**ng/L**
Fluoranthene	**6.2**	**4.6**	**ng/L**
Fluorene	**2.5 J**	**4.1**	**ng/L**
Indene	**7.7**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**7.4**	**5.9**	**ng/L**
1-Methylnaphthalene	**6.3**	**5.6**	**ng/L**
Naphthalene	**14**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**6.8**	**6.3**	**ng/L**
Pyrene	**19**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	12 *	(30 - 118)
Fluorene d-10	66	(41 - 162)
Naphthalene-d8	45	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W411-082503

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-004 Work Order #...: FW16D1AA Matrix.....: WG
Date Sampled...: 08/25/03 Date Received..: 08/26/03
Prep Date.....: 08/29/03 Analysis Date..: 09/29/03
Prep Batch #...: 3241187 Analysis Time..: 23:57
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**2.2 J**	**5.7**	**ng/L**
Acenaphthylene	**1.1 J**	**4.8**	**ng/L**
Acridine	ND	6.2	ng/L
Anthracene	**7.3**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	**4.6**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**1.1 J**	**5.7**	**ng/L**
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**1.6 J**	**5.0**	**ng/L**
Fluoranthene	**3.5 J**	**4.6**	**ng/L**
Fluorene	**2.0 J**	**4.1**	**ng/L**
Indene	**3.3 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**1.3 J**	**4.7**	**ng/L**
2-Methylnaphthalene	**4.7 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**3.8 J**	**5.6**	**ng/L**
Naphthalene	**7.8 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**4.5 J**	**6.3**	**ng/L**
Pyrene	**8.3**	**4.2**	**ng/L**
Quinoline	**1.6 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	16 *	(30 - 118)
Fluorene d-10	43	(41 - 162)
Naphthalene-d8	35	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W133-082503

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-005	Work Order #...: FW16F1AA	Matrix.....: WG	
Date Sampled...: 08/25/03	Date Received..: 08/26/03		
Prep Date.....: 08/29/03	Analysis Date..: 10/01/03		
Prep Batch #...: 3241187	Analysis Time..: 23:33		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	9.2	5.7	ng/L
Acenaphthylene	1.2 J	4.8	ng/L
Acridine	6.3	6.2	ng/L
Anthracene	2.4 J	4.2	ng/L
Benzo(a)anthracene	1.7 J	4.3	ng/L
Benzo(b)fluoranthene	2.0 J	4.7	ng/L
Benzo(k)fluoranthene	1.9 J	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	1.6 J	2.5	ng/L
Benzo(e)pyrene	1.7 J	4.3	ng/L
Benzo(b)thiophene	15	5.2	ng/L
Biphenyl	3.4 J	5.6	ng/L
Carbazole	9.0	3.8	ng/L
Chrysene	1.6 J	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	2.1 J	5.7	ng/L
Dibenzothiophene	9.1	4.1	ng/L
2,3-Dihydroindene	23	5.0	ng/L
Fluoranthene	4.1 J	4.6	ng/L
Fluorene	2.0 J	4.1	ng/L
Indene	11	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	2.3 J	4.7	ng/L
2-Methylnaphthalene	11	5.9	ng/L
1-Methylnaphthalene	14	5.6	ng/L
Naphthalene	280	8.6	ng/L
Perylene	1.1 J	3.3	ng/L
Phenanthrene	1.6 J	6.3	ng/L
Pyrene	4.1 J	4.2	ng/L
Quinoline	2.0 J	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	15 *	(30 - 118)
Fluorene d-10	49	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W412-082503

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-006 Work Order #...: FW16G1AA Matrix.....: WG
Date Sampled...: 08/25/03 Date Received..: 08/26/03
Prep Date.....: 08/29/03 Analysis Date..: 10/02/03
Prep Batch #...: 3241187 Analysis Time..: 00:12
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**2.9 J**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**33**	**6.2**	**ng/L**
Anthracene	**2.7 J**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	**4.8**	**4.7**	**ng/L**
Benzo(k)fluoranthene	**4.2**	**4.1**	**ng/L**
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**2.4 J**	**6.2**	**ng/L**
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**4.4 J**	**5.2**	**ng/L**
Biphenyl	**1.4 J**	**5.6**	**ng/L**
Carbazole	**3.9**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**1.1 J**	**5.7**	**ng/L**
Dibenzothiophene	**3.2 J**	**4.1**	**ng/L**
2,3-Dihydroindene	**5.0**	**5.0**	**ng/L**
Fluoranthene	**5.1**	**4.6**	**ng/L**
Fluorene	**2.9 J**	**4.1**	**ng/L**
Indene	**6.1**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**5.6 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**5.2 J**	**5.6**	**ng/L**
Naphthalene	**14**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**15**	**6.3**	**ng/L**
Pyrene	**18**	**4.2**	**ng/L**
Quinoline	**3.3 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	38	(30 - 118)
Fluorene d-10	60	(41 - 162)
Naphthalene-d8	44	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W412FB-082503

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-007	**Work Order #...:** FW16H1AA	**Matrix.....:** WG
Date Sampled...: 08/25/03	**Date Received..:** 08/26/03	
Prep Date.....: 08/29/03	**Analysis Date..:** 10/02/03	
Prep Batch #...: 3241187	**Analysis Time..:** 00:50	
Dilution Factor: 1		
	Method.....: SW846 8270C SIM	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	**1.2 J**	**4.3**	**ng/L**
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	**0.99 J**	**5.6**	**ng/L**
Naphthalene	**2.2 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**1.2 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(30 - 118)
Fluorene d-10	44	(41 - 162)
Naphthalene-d8	57	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W412FBD-082503

GC/MS Semivolatiles

Lot-Sample #...: D3H260172-008 **Work Order #...:** FW16K1AA **Matrix.....:** WG
Date Sampled...: 08/25/03 **Date Received..:** 08/26/03
Prep Date.....: 08/29/03 **Analysis Date..:** 10/02/03
Prep Batch #...: 3241187 **Analysis Time..:** 01:29
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.6 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	45	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	52	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D3H260172

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3241187	3241098
002	WG	SW846 8270C SIM		3241187	3241098
003	WG	SW846 8270C SIM		3241187	3241098
004	WG	SW846 8270C SIM		3241187	3241098
005	WG	SW846 8270C SIM		3241187	3241098
006	WG	SW846 8270C SIM		3241187	3241098
007	WG	SW846 8270C SIM		3241187	3241098
008	WG	SW846 8270C SIM		3241187	3241098

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3H260172 **Work Order #...:** FW9PR1AA **Matrix.....:** WATER
MB Lot-Sample #: D3H290000-187

Prep Date.....: 08/29/03 **Analysis Time..:** 17:42
Analysis Date..: 09/29/03 **Prep Batch #...:** 3241187
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(30 - 118)
Fluorene d-10	28 *	(41 - 162)
Naphthalene-d8	40	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

* Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H260172 **Work Order #...:** FW9PR1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H290000-187
Prep Date.....: 08/29/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3241187 **Analysis Time..:** 18:19
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**52**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**47**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**56**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**58**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**55**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**63**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**11 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(30 - 118)
Fluorene d-10	39 *	(41 - 162)
Naphthalene-d8	58	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H260172 **Work Order #...:** FW9PR1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3H290000-187
Prep Date.....: 08/29/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3241187 **Analysis Time..:** 18:19
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**5.25**	**ng/L**	**52**	**SW846 8270C S**
Chrysene	**10.0**	**4.72**	**ng/L**	**47**	**SW846 8270C S**
Fluorene	**10.0**	**5.57**	**ng/L**	**56**	**SW846 8270C S**
Indene	**10.0**	**5.78**	**ng/L**	**58**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**5.55**	**ng/L**	**55**	**SW846 8270C S**
Naphthalene	**10.0**	**6.28**	**ng/L**	**63**	**SW846 8270C S**
Quinoline	**10.0**	**1.13 a**	**ng/L**	**11**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(30 - 118)
Fluorene d-10	39 *	(41 - 162)
Naphthalene-d8	58	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H260172 **Work Order #...:** FW15V1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3H260172-001 FW15V1AD-MSD
Date Sampled...: 08/25/03 **Date Received..:** 08/26/03
Prep Date.....: 08/29/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3241187 **Analysis Time..:** 21:25
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a	**(30 - 150)**	**0.0**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**19 a**	**(30 - 132)**			**SW846 8270C SIM**
	13 a	**(30 - 132)**	**34**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**66**	**(30 - 132)**			**SW846 8270C SIM**
	46	**(30 - 132)**	**33**	**(0-50)**	**SW846 8270C SIM**
Indene	**56**	**(30 - 150)**			**SW846 8270C SIM**
	38	**(30 - 150)**	**36**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**56**	**(30 - 150)**			**SW846 8270C SIM**
	41	**(30 - 150)**	**29**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**65**	**(30 - 150)**			**SW846 8270C SIM**
	47	**(30 - 150)**	**30**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**53**	**(30 - 150)**			**SW846 8270C SIM**
	54	**(30 - 150)**	**4.3**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
	18 *	(30 - 118)
Fluorene d-10	59	(41 - 162)
	40 *	(41 - 162)
Naphthalene-d8	55	(30 - 108)
	41	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3H260172 **Work Order #...:** FW15V1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3H260172-001 FW15V1AD-MSD
Date Sampled...: 08/25/03 **Date Received..:** 08/26/03
Prep Date.....: 08/29/03 **Analysis Date..:** 09/29/03
Prep Batch #...: 3241187 **Analysis Time..:** 21:25
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**9.53**	**0.0**	**ng/L**	**0.0 a**		**SW846 8270C SIM**
	ND	**9.71**	**0.0**	**ng/L**	**0.0 a**	**0.0**	**SW846 8270C SIM**
Chrysene	**ND**	**9.53**	**1.79**	**ng/L**	**19 a**		**SW846 8270C SIM**
	ND	**9.71**	**1.26**	**ng/L**	**13 a**	**34**	**SW846 8270C SIM**
Fluorene	**ND**	**9.53**	**6.28**	**ng/L**	**66**		**SW846 8270C SIM**
	ND	**9.71**	**4.49**	**ng/L**	**46**	**33**	**SW846 8270C SIM**
Indene	**ND**	**9.53**	**5.34**	**ng/L**	**56**		**SW846 8270C SIM**
	ND	**9.71**	**3.71**	**ng/L**	**38**	**36**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**9.53**	**5.37**	**ng/L**	**56**		**SW846 8270C SIM**
	ND	**9.71**	**4.03**	**ng/L**	**41**	**29**	**SW846 8270C SIM**
Naphthalene	**ND**	**9.53**	**6.15**	**ng/L**	**65**		**SW846 8270C SIM**
	ND	**9.71**	**4.52**	**ng/L**	**47**	**30**	**SW846 8270C SIM**
Quinoline	**ND**	**9.53**	**5.07**	**ng/L**	**53**		**SW846 8270C SIM**
	ND	**9.71**	**5.29**	**ng/L**	**54**	**4.3**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
	18 *	(30 - 118)
Fluorene d-10	59	(41 - 162)
	40 *	(41 - 162)
Naphthalene-d8	55	(30 - 108)
	41	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

3.0 | 2.9° Bath

SEVERN TRENT SERVICES **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client: City of St. Louis Park.	Project Manager: Scott Anderson	Date: 8/25/03	Chain of Custody Number: 150762
Address: 5005 Minnetonka Blvd.	Telephone Number (Area Code)/Fax Number: 952-924-2550	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact:	Lab Contact:	
Project Name and Location (State):	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	$ZnAc/NaOH$	6	PAH PPT-5
SLP3 OB-25-03	OB-25-03	12:20		X									X	X
SLP3D OB-25-03	OB-25-03	12:25											X	X
SLP3MS OB-25-03	OB-25-03	12:30											X	X
SLP3MSD OB-25-03	OB-25-03	12:35											X	X

Analysis (Attach list if more space is needed): PAH PPT-5

Special Instructions/ Conditions of Receipt

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

1. Relinquished By	Date: 08-25-03	Time: 12:50	1. Received By	Date: 8/26/03	Time: 0830
2. Relinquished By	Date: 8/25/03	Time: 1800	2. Received By	Date:	Time:
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

4.2°/3.2°/10°

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 8/25/03	Chain of Custody Number: 150749
Address: 3753 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924 2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact:	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT-5
W122-082503	8/25/03	1705		X			6						X
W411-082503		1535											
W133-082503		1735											
W412-082503		1435											
W412FB-082503		1425											
W412FBD-082503		1430											

Special Instructions/ Conditions of Receipt: PAH PPT-5

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	8/25/03	1800	1. Received By: [signature]	8/26/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3H260172 (T)

March 5, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of eight aqueous samples for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on August 25, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3H260172.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

SLP3-082503
SLP3D-082503
W122-082503
W411-082503
W133-082503
W412-082503
W412FB-082503
W412FBD-082503

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results

- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.9°C and 4.2°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, prep batch 3241187. Target analytes were not detected in the laboratory method blank. There were four compounds detected in the field blank submitted for this data package. They were benzo(a)anthracene, 1-methylnaphthalene, naphthalene, and pyrene.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were low in four of the eight samples for for chrysene-d12. Fluorene-d10 was also low in the Blank, LCS, and MS/MSD. All other surrogates were in control of the QAPP limits.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses except for quinoline. Quinoline was recovered at only 11% of the required 30%.

MS/MSD Results

MS/MSD analyses were performed on sample SLP9-082503. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for benzo(e)pyrene was 0% for the MS and MSD. Chrysene had lower recoveries to report in the MS and MSD. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	0/0	ok	30-150/0-50
Chrysene	19/13	ok	30-132/0-50

ENSR

Field Duplicate Results

Sample SLP3-082503 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for the detected analytes. Only one out of 31 compounds was detected with a RPD range of 2.3%.

Quantitation Limits and Sample Results

There were no samples analyzed using a dilution.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

U

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3I030310

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

October 6, 2003

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3I030310

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Eight samples were received under chain of custody on September 3, 2003. The samples were received in good condition at temperatures of 2.3, 2.4, 2.2, 2.1, and 2.8°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The surrogate recovery of Chrysene-d12 was below the 30% threshold for samples D3I030310-001, 004 (1x), 004 (2x), 005, 006, 007, 008, and the MS/MSD of sample 005.

Sample D3I030310-004 was analyzed at a 2-fold dilution to obtain 2,3-Dihydroindene within the calibration range. All other analytes for this sample are reported from the undiluted analysis.

Sample D3I030310-005 was analyzed at a 10-fold dilution to obtain Acenaphthene, Benzo(b)thiophene, Carbazole, 2,3-Dihydroindene, Indene, and 1-Methylnaphthalene within the calibration range. All other analytes for this sample are reported from the undiluted analysis. The surrogate recoveries could not be calculated in the 10-fold dilution.

Sample D3I030310-006 was analyzed at a 10-fold dilution to obtain Acenaphthene, Benzo(b)thiophene, Carbazole, Dibenzofuran, 2,3-Dihydroindene, Fluroene, Indene, and 1-Methylnaphthalene, and Phenanthrene within the calibration range. All other analytes for this sample are reported from the undiluted analysis. The surrogate recoveries could not be calculated in the 10-fold dilution.

Sample D3I030310-007 was analyzed at a 25-fold dilution to obtain target analytes within the calibration range. Benzo(b)fluoranthene, Benzo(k)fluoranthene, 2,3-Benzofuran, Benzo(ghi)perylene, Benzo(a)pyrene, Benzo(e)pyrene, Dibenzo(a,h)anthracene, Indene, Indeno(1,2,3-cd)pyrene, Indole, Perylene, and Quinoline for this sample are reported from the undiluted analysis. The surrogate recoveries could not be calculated in the 10-fold dilution.

Sample D3I030310-008 was analyzed at a 10-fold dilution to obtain Acenaphthene, 2,3-Dihydroindene, and Fluorene within the calibration range. All other analytes for this sample are

reported from the undiluted analysis. The surrogate recoveries could not be calculated in the 10-fold dilution.

The MS/MSD performed on sample D3I030310-005 demonstrated recoveries that were below the control limits for Benzo(e)pyrene, Chrysene, and Quinoline and above the control limits for Fluorene and Indene.

Detections in the Field Blank and Field Blank Duplicate are less than the reporting limit.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3I030310	
ANALYSIS:	SW846-8270C SIM	
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	3
MS Surrogates	3	2
MSD	7	2
MSD Surrogates .	3	2
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	27	20
Samples and QC Internal Standard Area	51	51
TOTAL	**242**	**216**
% Completeness	**92.6%**	

*A MS/MSD was performed on sample W410-090203.

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3I030310					
Sample: W410-090203		DUP: W410D-090203			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	310	Acenaphthene	350	12.1	
Acenaphthylene	94	Acenaphthylene	100	6.2	
Acridine	ND	Acridine	ND	0.0	
Anthracene	15	Anthracene	17	12.5	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	4.8	2,3-Benzofuran	ND	NC	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	360	Benzo(b)thiophene	420	15.4	
Biphenyl	96	Biphenyl	110	13.6	
Carbazole	150	Carbazole	150	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	140	Dibenzofuran	150	6.9	
Dibenzothiophene	10	Dibenzothiophene	12	18.2	
2,3-Dihydroindene	910	2,3-Dihydroindene	1100	18.9	
Fluoranthene	10	Fluoranthene	11	9.5	
Fluorene	150	Fluorene	160	6.5	
Indene	810	Indene	940	14.9	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	4.5	Indole	5.9	26.9	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	490	1-Methylnaphthalene	570	15.1	
Naphthalene	41	Naphthalene	52	23.7	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	150	Phenanthrene	170	12.5	
Pyrene	5.4	Pyrene	5.6	3.6	
Quinoline	7.5	Quinoline	10	28.6	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3I030310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W33-090203 09/02/03 11:15 001				
Acenaphthene	13	5.7	ng/L	SW846 8270C SIM
Acridine	2.6 J	6.2	ng/L	SW846 8270C SIM
Anthracene	4.2	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	6.1	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	6.0	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	3.9 J	4.1	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	3.5 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	5.6	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	3.9 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	8.1	5.2	ng/L	SW846 8270C SIM
Biphenyl	0.97 J	5.6	ng/L	SW846 8270C SIM
Carbazole	30	3.8	ng/L	SW846 8270C SIM
Chrysene	5.1 J	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	1.4 J	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	2.0 J	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	1.5 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	19	5.0	ng/L	SW846 8270C SIM
Fluoranthene	18	4.6	ng/L	SW846 8270C SIM
Fluorene	5.6	4.1	ng/L	SW846 8270C SIM
Indene	4.0 J	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	3.7 J	5.4	ng/L	SW846 8270C SIM
2-Methylnaphthalene	5.3 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	4.7 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	11	8.6	ng/L	SW846 8270C SIM
Perylene	1.3 J	3.3	ng/L	SW846 8270C SIM
Phenanthrene	21	6.3	ng/L	SW846 8270C SIM
Pyrene	19	4.2	ng/L	SW846 8270C SIM
W33FB-090203 09/02/03 10:55 002				
Anthracene	1.2 J	4.2	ng/L	SW846 8270C SIM
Indene	1.3 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.3 J	5.9	ng/L	SW846 8270C SIM
Naphthalene	3.1 J	8.6	ng/L	SW846 8270C SIM
W33FBD-090203 09/02/03 11:00 003				
Indene	1.2 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.4 J	5.9	ng/L	SW846 8270C SIM
Naphthalene	3.3 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.1 J	6.3	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3I030310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W24-090203 09/02/03 13:45 004				
Acenaphthene	19	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	1.4 J	4.8	ng/L	SW846 8270C SIM
Anthracene	4.0 J	4.2	ng/L	SW846 8270C SIM
2,3-Benzofuran	1.2 J	5.4	ng/L	SW846 8270C SIM
Benzo(b)thiophene	2.3 J	5.2	ng/L	SW846 8270C SIM
Carbazole	2.3 J	3.8	ng/L	SW846 8270C SIM
2,3-Dihydroindene	190	10	ng/L	SW846 8270C SIM
Fluoranthene	1.5 J	4.6	ng/L	SW846 8270C SIM
Indene	7.2	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	2.9 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	2.3 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	6.5 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.2 J	6.3	ng/L	SW846 8270C SIM
Pyrene	2.7 J	4.2	ng/L	SW846 8270C SIM
W410-090203 09/02/03 11:40 005				
Acenaphthene	310	57	ng/L	SW846 8270C SIM
Acenaphthylene	94	4.8	ng/L	SW846 8270C SIM
Anthracene	15	4.2	ng/L	SW846 8270C SIM
2,3-Benzofuran	4.8 J	5.4	ng/L	SW846 8270C SIM
Benzo(b)thiophene	360	52	ng/L	SW846 8270C SIM
Biphenyl	96	5.6	ng/L	SW846 8270C SIM
Carbazole	150	38	ng/L	SW846 8270C SIM
Dibenzofuran	140	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	10	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	910	50	ng/L	SW846 8270C SIM
Fluoranthene	10	4.6	ng/L	SW846 8270C SIM
Fluorene	150	4.1	ng/L	SW846 8270C SIM
Indene	870 E	4.7	ng/L	SW846 8270C SIM
Indene	810	47	ng/L	SW846 8270C SIM
Indole	4.5 J	4.7	ng/L	SW846 8270C SIM
1-Methylnaphthalene	540	5.6	ng/L	SW846 8270C SIM
1-Methylnaphthalene	490	56	ng/L	SW846 8270C SIM
Naphthalene	41	8.6	ng/L	SW846 8270C SIM
Phenanthrene	150	6.3	ng/L	SW846 8270C SIM
Pyrene	5.4	4.2	ng/L	SW846 8270C SIM
Quinoline	7.5 J	9.0	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3I030310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W410D-090203 09/02/03 11:45 006				
Acenaphthene	350	57	ng/L	SW846 8270C SIM
Acenaphthylene	100	4.8	ng/L	SW846 8270C SIM
Anthracene	17	4.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	420	52	ng/L	SW846 8270C SIM
Biphenyl	110	5.6	ng/L	SW846 8270C SIM
Carbazole	150	38	ng/L	SW846 8270C SIM
Dibenzofuran	150	57	ng/L	SW846 8270C SIM
Dibenzothiophene	12	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	1100	50	ng/L	SW846 8270C SIM
Fluoranthene	11	4.6	ng/L	SW846 8270C SIM
Fluorene	160	41	ng/L	SW846 8270C SIM
Indene	940	47	ng/L	SW846 8270C SIM
Indole	5.9	4.7	ng/L	SW846 8270C SIM
1-Methylnaphthalene	570	56	ng/L	SW846 8270C SIM
Naphthalene	52	8.6	ng/L	SW846 8270C SIM
Phenanthrene	170	63	ng/L	SW846 8270C SIM
Pyrene	5.6	4.2	ng/L	SW846 8270C SIM
Quinoline	10	9.0	ng/L	SW846 8270C SIM
W23-090203 09/02/03 12:10 007				
Acenaphthene	4500	140	ng/L	SW846 8270C SIM
Acenaphthylene	240	120	ng/L	SW846 8270C SIM
Acridine	300	160	ng/L	SW846 8270C SIM
Anthracene	240	100	ng/L	SW846 8270C SIM
Benzo(a)anthracene	180	110	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	52	4.7	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	2.0 J	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	36	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	17	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	160	130	ng/L	SW846 8270C SIM
Biphenyl	610	140	ng/L	SW846 8270C SIM
Carbazole	210	95	ng/L	SW846 8270C SIM
Chrysene	240	140	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	1.2 J	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	1200	140	ng/L	SW846 8270C SIM
Dibenzothiophene	300	100	ng/L	SW846 8270C SIM
2,3-Dihydroindene	910	120	ng/L	SW846 8270C SIM
Fluoranthene	1600	120	ng/L	SW846 8270C SIM
Fluorene	2900	100	ng/L	SW846 8270C SIM
Indene	98	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	2.5 J	5.4	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1100	150	ng/L	SW846 8270C SIM

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EXECUTIVE SUMMARY - Detection Highlights

D3I030310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W23-090203 09/02/03 12:10 007				
1-Methylnaphthalene	1600	140	ng/L	SW846 8270C SIM
Naphthalene	4500	220	ng/L	SW846 8270C SIM
Perylene	6.1	3.3	ng/L	SW846 8270C SIM
Phenanthrene	1300	160	ng/L	SW846 8270C SIM
Pyrene	1600	100	ng/L	SW846 8270C SIM
SLP10-090203 09/02/03 12:15 008				
Acenaphthene	500	57	ng/L	SW846 8270C SIM
Acenaphthylene	74	4.8	ng/L	SW846 8270C SIM
Acridine	3.4 J	6.2	ng/L	SW846 8270C SIM
Anthracene	7.2	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	1.5 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	41	5.2	ng/L	SW846 8270C SIM
Biphenyl	15	5.6	ng/L	SW846 8270C SIM
Carbazole	26	3.8	ng/L	SW846 8270C SIM
Chrysene	0.99 J	5.6	ng/L	SW846 8270C SIM
Dibenzofuran	54	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	18	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	210	50	ng/L	SW846 8270C SIM
Fluoranthene	28	4.6	ng/L	SW846 8270C SIM
Fluorene	130	41	ng/L	SW846 8270C SIM
Indene	56	4.7	ng/L	SW846 8270C SIM
Indole	4.3 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.4 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	85	5.6	ng/L	SW846 8270C SIM
Naphthalene	7.5 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	17	6.3	ng/L	SW846 8270C SIM
Pyrene	53	4.2	ng/L	SW846 8270C SIM
Quinoline	5.7 J	9.0	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3I030310

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3I030310

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3I030310

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FXJFV	001	W33-090203	09/02/03	11:15
FXJFW	002	W33FB-090203	09/02/03	10:55
FXJF0	003	W33FBD-090203	09/02/03	11:00
FXJF1	004	W24-090203	09/02/03	13:45
FXJF4	005	W410-090203	09/02/03	11:40
FXJF7	006	W410D-090203	09/02/03	11:45
FXJGC	007	W23-090203	09/02/03	12:10
FXJGE	008	SLP10-090203	09/02/03	12:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W33-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-001 Work Order #...: FXJFV1AA Matrix.....: WG
Date Sampled...: 09/02/03 Date Received..: 09/03/03
Prep Date.....: 09/07/03 Analysis Date..: 10/02/03
Prep Batch #...: 3250094 Analysis Time..: 12:55
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	13	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	2.6 J	6.2	ng/L
Anthracene	4.2	4.2	ng/L
Benzo(a)anthracene	6.1	4.3	ng/L
Benzo(b)fluoranthene	6.0	4.7	ng/L
Benzo(k)fluoranthene	3.9 J	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	3.5 J	6.2	ng/L
Benzo(a)pyrene	5.6	2.5	ng/L
Benzo(e)pyrene	3.9 J	4.3	ng/L
Benzo(b)thiophene	8.1	5.2	ng/L
Biphenyl	0.97 J	5.6	ng/L
Carbazole	30	3.8	ng/L
Chrysene	5.1 J	5.6	ng/L
Dibenzo(a,h)anthracene	1.4 J	5.9	ng/L
Dibenzofuran	2.0 J	5.7	ng/L
Dibenzothiophene	1.5 J	4.1	ng/L
2,3-Dihydroindene	19	5.0	ng/L
Fluoranthene	18	4.6	ng/L
Fluorene	5.6	4.1	ng/L
Indene	4.0 J	4.7	ng/L
Indeno(1,2,3-cd)pyrene	3.7 J	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	5.3 J	5.9	ng/L
1-Methylnaphthalene	4.7 J	5.6	ng/L
Naphthalene	11	8.6	ng/L
Perylene	1.3 J	3.3	ng/L
Phenanthrene	21	6.3	ng/L
Pyrene	19	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	12 *	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	40	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W33FB-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-002	**Work Order #...:** FXJFW1AA	**Matrix.....:** WG	
Date Sampled...: 09/02/03	**Date Received..:** 09/03/03		
Prep Date.....: 09/07/03	**Analysis Date..:** 10/02/03		
Prep Batch #...: 3250094	**Analysis Time..:** 13:33		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	**1.2 J**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**1.3 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**1.3 J**	**5.9**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**3.1 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(30 - 118)
Fluorene d-10	48	(41 - 162)
Naphthalene-d8	45	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W33FBD-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-003	**Work Order #...:** FXJF01AA	**Matrix.....:** WG
Date Sampled...: 09/02/03	**Date Received..:** 09/03/03	
Prep Date.....: 09/07/03	**Analysis Date..:** 10/02/03	
Prep Batch #...: 3250094	**Analysis Time..:** 14:11	
Dilution Factor: 1		
	Method.....: SW846 8270C SIM	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**1.2 J**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**1.4 J**	**5.9**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**3.3 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.1 J**	**6.3**	**ng/L**
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 118)
Fluorene d-10	48	(41 - 162)
Naphthalene-d8	47	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W24-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-004 Work Order #...: FXJF11AA Matrix.....: WG
Date Sampled...: 09/02/03 Date Received..: 09/03/03
Prep Date.....: 09/07/03 Analysis Date..: 10/02/03
Prep Batch #...: 3250094 Analysis Time..: 14:48
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**19**	**5.7**	**ng/L**
Acenaphthylene	**1.4 J**	**4.8**	**ng/L**
Acridine	ND	6.2	ng/L
Anthracene	**4.0 J**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	**1.2 J**	**5.4**	**ng/L**
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**2.3 J**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**2.3 J**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
Fluoranthene	**1.5 J**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	**7.2**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**2.9 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**2.3 J**	**5.6**	**ng/L**
Naphthalene	**6.5 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**2.2 J**	**6.3**	**ng/L**
Pyrene	**2.7 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	16 *	(30 - 118)
Fluorene d-10	35 *	(41 - 162)
Naphthalene-d8	37	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W24-090203

GC/MS Semivolatiles

Lot-Sample #...:	D3I030310-004	Work Order #...:	FXJF12AA	Matrix.....:	WG
Date Sampled...:	09/02/03	Date Received..:	09/03/03		
Prep Date.....:	09/07/03	Analysis Date..:	10/02/03		
Prep Batch #...:	3250094	Analysis Time..:	20:04		
Dilution Factor:	2				
		Method.....:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	190	10	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17 *	(30 - 118)
Fluorene d-10	36 *	(41 - 162)
Naphthalene-d8	42	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: W410-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-005	**Work Order #...:** FXJF41AA	**Matrix.....:** WG	
Date Sampled...: 09/02/03	**Date Received..:** 09/03/03		
Prep Date.....: 09/07/03	**Analysis Date..:** 10/02/03		
Prep Batch #...: 3250094	**Analysis Time..:** 15:26		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**94**	**4.8**	**ng/L**
Acridine	ND	6.2	ng/L
Anthracene	**15**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	**4.8 J**	**5.4**	**ng/L**
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Biphenyl	**96**	**5.6**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**140**	**5.7**	**ng/L**
Dibenzothiophene	**10**	**4.1**	**ng/L**
Fluoranthene	**10**	**4.6**	**ng/L**
Fluorene	**150**	**4.1**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**4.5 J**	**4.7**	**ng/L**
2-Methylnaphthalene	ND	5.9	ng/L
Naphthalene	**41**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**150**	**6.3**	**ng/L**
Pyrene	**5.4**	**4.2**	**ng/L**
Quinoline	**7.5 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	19 *	(30 - 118)
Fluorene d-10	49	(41 - 162)
Naphthalene-d8	42	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W410-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-005 **Work Order #...:** FXJF42AA **Matrix.....:** WG
Date Sampled...: 09/02/03 **Date Received..:** 09/03/03
Prep Date.....: 09/07/03 **Analysis Date..:** 10/02/03
Prep Batch #...: 3250094 **Analysis Time..:** 20:41
Dilution Factor: 10

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**310**	**57**	**ng/L**
Benzo(b)thiophene	**360**	**52**	**ng/L**
Carbazole	**150**	**38**	**ng/L**
2,3-Dihydroindene	**910**	**50**	**ng/L**
Indene	**810**	**47**	**ng/L**
1-Methylnaphthalene	**490**	**56**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W410D-090203

GC/MS Semivolatiles

Lot-Sample #...:	D3I030310-006	**Work Order #...:**	FXJF71AA	**Matrix.....:**	WG
Date Sampled...:	09/02/03	**Date Received..:**	09/03/03		
Prep Date.....:	09/07/03	**Analysis Date..:**	10/02/03		
Prep Batch #...:	3250094	**Analysis Time..:**	17:19		
Dilution Factor:	1				
		Method.....:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**100**	**4.8**	**ng/L**
Acridine	ND	6.2	ng/L
Anthracene	**17**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Biphenyl	**110**	**5.6**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzothiophene	**12**	**4.1**	**ng/L**
Fluoranthene	**11**	**4.6**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**5.9**	**4.7**	**ng/L**
2-Methylnaphthalene	ND	5.9	ng/L
Naphthalene	**52**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Pyrene	**5.6**	**4.2**	**ng/L**
Quinoline	**10**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	65	(41 - 162)
Naphthalene-d8	50	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: W410D-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-006 Work Order #...: FXJF72AA Matrix.....: WG
Date Sampled...: 09/02/03 Date Received..: 09/03/03
Prep Date.....: 09/07/03 Analysis Date..: 10/02/03
Prep Batch #...: 3250094 Analysis Time..: 21:18
Dilution Factor: 10
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	350	57	ng/L
Benzo(b)thiophene	420	52	ng/L
Carbazole	150	38	ng/L
Dibenzofuran	150	57	ng/L
2,3-Dihydroindene	1100	50	ng/L
Fluorene	160	41	ng/L
Indene	940	47	ng/L
1-Methylnaphthalene	570	56	ng/L
Phenanthrene	170	63	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W23-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-007 **Work Order #...:** FXJGC1AA **Matrix.....:** WG
Date Sampled...: 09/02/03 **Date Received..:** 09/03/03
Prep Date.....: 09/07/03 **Analysis Date..:** 10/02/03
Prep Batch #...: 3250094 **Analysis Time..:** 17:57
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(b)fluoranthene	**52**	**4.7**	**ng/L**
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	**2.0 J**	**6.2**	**ng/L**
Benzo(a)pyrene	**36**	**2.5**	**ng/L**
Benzo(e)pyrene	**17**	**4.3**	**ng/L**
Dibenzo(a,h)anthracene	**1.2 J**	**5.9**	**ng/L**
Indene	**98**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	**2.5 J**	**5.4**	**ng/L**
Indole	ND	4.7	ng/L
Perylene	**6.1**	**3.3**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
Fluorene d-10	112	(41 - 162)
Naphthalene-d8	47	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W23-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-007 Work Order #...: FXJGC2AA Matrix.....: WG
Date Sampled...: 09/02/03 Date Received..: 09/03/03
Prep Date.....: 09/07/03 Analysis Date..: 10/02/03
Prep Batch #...: 3250094 Analysis Time..: 21:55
Dilution Factor: 25
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	4500	140	ng/L
Acenaphthylene	240	120	ng/L
Acridine	300	160	ng/L
Anthracene	240	100	ng/L
Benzo(a)anthracene	180	110	ng/L
Benzo(b)thiophene	160	130	ng/L
Biphenyl	610	140	ng/L
Carbazole	210	95	ng/L
Chrysene	240	140	ng/L
Dibenzofuran	1200	140	ng/L
Dibenzothiophene	300	100	ng/L
2,3-Dihydroindene	910	120	ng/L
Fluoranthene	1600	120	ng/L
Fluorene	2900	100	ng/L
2-Methylnaphthalene	1100	150	ng/L
1-Methylnaphthalene	1600	140	ng/L
Naphthalene	4500	220	ng/L
Phenanthrene	1300	160	ng/L
Pyrene	1600	100	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP10-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-008	Work Order #...: FXJGE1AA	Matrix.....: WG	
Date Sampled...: 09/02/03	Date Received..: 09/03/03		
Prep Date.....: 09/07/03	Analysis Date..: 10/02/03		
Prep Batch #...: 3250094	Analysis Time..: 18:35		
Dilution Factor: 1			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**74**	**4.8**	**ng/L**
Acridine	**3.4 J**	**6.2**	**ng/L**
Anthracene	**7.2**	**4.2**	**ng/L**
Benzo(a)anthracene	**1.5 J**	**4.3**	**ng/L**
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**41**	**5.2**	**ng/L**
Biphenyl	**15**	**5.6**	**ng/L**
Carbazole	**26**	**3.8**	**ng/L**
Chrysene	**0.99 J**	**5.6**	**ng/L**
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	**54**	**5.7**	**ng/L**
Dibenzothiophene	**18**	**4.1**	**ng/L**
Fluoranthene	**28**	**4.6**	**ng/L**
Indene	**56**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**4.3 J**	**4.7**	**ng/L**
2-Methylnaphthalene	**1.4 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**85**	**5.6**	**ng/L**
Naphthalene	**7.5 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**17**	**6.3**	**ng/L**
Pyrene	**53**	**4.2**	**ng/L**
Quinoline	**5.7 J**	**9.0**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	26 *	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	42	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP10-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-008	**Work Order #...:** FXJGE2AA	**Matrix.....:** WG	
Date Sampled...: 09/02/03	**Date Received..:** 09/03/03		
Prep Date.....: 09/07/03	**Analysis Date..:** 10/02/03		
Prep Batch #...: 3250094	**Analysis Time..:** 22:33		
Dilution Factor: 10			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**500**	**57**	**ng/L**
2,3-Dihydroindene	**210**	**50**	**ng/L**
Fluorene	**130**	**41**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

QC DATA ASSOCIATION SUMMARY

D3I030310

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3250094	3250007
002	WG	SW846 8270C SIM		3250094	3250007
003	WG	SW846 8270C SIM		3250094	3250007
004	WG	SW846 8270C SIM		3250094	3250007
005	WG	SW846 8270C SIM		3250094	3250007
006	WG	SW846 8270C SIM		3250094	3250007
007	WG	SW846 8270C SIM		3250094	3250007
008	WG	SW846 8270C SIM		3250094	3250007

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3I030310 **Work Order #...:** FXRVN1AA **Matrix.....:** WATER
MB Lot-Sample #: D3I070000-094

Prep Date.....: 09/07/03 **Analysis Time..:** 11:39
Analysis Date..: 10/02/03 **Prep Batch #...:** 3250094
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
hrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	44	(30 - 118)
Fluorene d-10	39 *	(41 - 162)
Naphthalene-d8	41	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

* Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3I030310 **Work Order #...:** FXRVN1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3I070000-094
Prep Date.....: 09/07/03 **Analysis Date..:** 10/02/03
Prep Batch #...: 3250094 **Analysis Time..:** 12:17
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**60**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**61**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**59**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**48**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**51**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**59**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**58**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	66	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	49	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3I030310 **Work Order #...:** FXRVN1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3I070000-094
Prep Date.....: 09/07/03 **Analysis Date..:** 10/02/03
Prep Batch #...: 3250094 **Analysis Time..:** 12:17
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**5.96**	**ng/L**	**60**	**SW846 8270C S**
Chrysene	**10.0**	**6.11**	**ng/L**	**61**	**SW846 8270C S**
Fluorene	**10.0**	**5.87**	**ng/L**	**59**	**SW846 8270C S**
Indene	**10.0**	**4.85**	**ng/L**	**48**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**5.12**	**ng/L**	**51**	**SW846 8270C S**
Naphthalene	**10.0**	**5.92**	**ng/L**	**59**	**SW846 8270C S**
Quinoline	**10.0**	**5.85**	**ng/L**	**58**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	66	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	49	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3I030310	**Work Order #...:**	FXJF41AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3I030310-005		FXJF41AD-MSD		
Date Sampled...:	09/02/03	**Date Received..:**	09/03/03		
Prep Date.....:	09/07/03	**Analysis Date..:**	10/02/03		
Prep Batch #...:	3250094	**Analysis Time..:**	16:04		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a	**(30 - 150)**	**0.0**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**21 a**	**(30 - 132)**			**SW846 8270C SIM**
	18 a	**(30 - 132)**	**25**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**461 a**	**(30 - 132)**			**SW846 8270C SIM**
	475 a	**(30 - 132)**	**0.77**	**(0-50)**	**SW846 8270C SIM**
Indene	**1080 a**	**(30 - 150)**			**SW846 8270C SIM**
	1010 a	**(30 - 150)**	**1.4**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**58**	**(30 - 150)**			**SW846 8270C SIM**
	57	**(30 - 150)**	**6.9**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**126**	**(30 - 150)**			**SW846 8270C SIM**
	116	**(30 - 150)**	**3.3**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**33**	**(30 - 150)**			**SW846 8270C SIM**
	24 a	**(30 - 150)**	**10**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	23 *	(30 - 118)
	20 *	(30 - 118)
Fluorene d-10	57	(41 - 162)
	57	(41 - 162)
Naphthalene-d8	46	(30 - 108)
	43	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3I030310 **Work Order #...:** FXJF41AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3I030310-005 FXJF41AD-MSD
Date Sampled...: 09/02/03 **Date Received..:** 09/03/03
Prep Date.....: 09/07/03 **Analysis Date..:** 10/02/03
Prep Batch #...: 3250094 **Analysis Time..:** 16:04
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	**10.4**	**0.0**	**ng/L**	**0.0 a**		**SW846 8270C SIM**
	ND	**9.77**	**0.0**	**ng/L**	**0.0 a**	**0.0**	**SW846 8270C SIM**
Chrysene	**ND**	**10.4**	**2.21**	**ng/L**	**21 a**		**SW846 8270C SIM**
	ND	**9.77**	**1.71**	**ng/L**	**18 a**	**25**	**SW846 8270C SIM**
Fluorene	**150**	**10.4**	**195**	**ng/L**	**461 a**		**SW846 8270C SIM**
	150	**9.77**	**194**	**ng/L**	**475 a**	**0.77**	**SW846 8270C SIM**
Indene	**870**	**10.4**	**979**	**ng/L**	**1080 a**		**SW846 8270C SIM**
	870	**9.77**	**966**	**ng/L**	**1010 a**	**1.4**	**SW846 8270C SIM**
2-Methylnaphthalene	**ND**	**10.4**	**6.02**	**ng/L**	**58**		**SW846 8270C SIM**
	ND	**9.77**	**5.61**	**ng/L**	**57**	**6.9**	**SW846 8270C SIM**
Naphthalene	**41**	**10.4**	**54.1**	**ng/L**	**126**		**SW846 8270C SIM**
	41	**9.77**	**52.4**	**ng/L**	**116**	**3.3**	**SW846 8270C SIM**
Quinoline	**7.5**	**10.4**	**10.9**	**ng/L**	**33**		**SW846 8270C SIM**
	7.5	**9.77**	**9.85**	**ng/L**	**24 a**	**10**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	23 *	(30 - 118)
	20 *	(30 - 118)
Fluorene d-10	57	(41 - 162)
	57	(41 - 162)
Naphthalene-d8	46	(30 - 108)
	43	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

2.3/2.4/2.2/2.1/2.8

SEVERN TRENT SERVICES **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 9/2/03	Chain of Custody Number: 150765
Address: 3953 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact:	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PAH PPT 75	Special Instructions/ Conditions of Receipt
W33-090203	9/2/03	1115		X			6						X	PAH PPT-75
W33FB-090203		1055												
W33FBD-090203		1100												
W24-090203		1345												

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By	9/2/03	1500	1. Received By	9/3/03	0815
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample: PINK - Field Copy

[redacted]

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: CITY OF ST. LOUIS PARK	Project Manager: SCOTT ANDERSEN	Date: 9/2/03	Chain of Custody Number: 150764
Address: 5005 MINNETONKA BLVD.	Telephone Number (Area Code)/Fax Number: 952-924-2558	Lab Number:	Page 1 of 1
City: ST. LOUIS PARK / State: MN. / Zip Code: 55416	Site Contact:	Lab Contact:	
Project Name and Location (State):	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	# of cont.	Analysis: PAH PCP-75	Special Instructions/ Conditions of Receipt
W410 09-02-03	09-02-03	11:40		X									X	X	
W410 D 09-02-03	09-02-03	11:45		↓									X	X	
W410 MS 09-02-03	09-02-03	11:50											X	X	
W410 MSD 09-02-03	09-02-03	11:55											X	X	
W23 09-02-03	09-02-03	12:10											X	X	
SLP 10 09-02-03	09-02-03	12:15		↓									X	X	

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	09-02-03	12:30	1. Received By	9/3/03	0845
2. Relinquished By	↓	1900	2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample; PINK - Field Copy

ENSR

FULL VALIDATION

STL Project # D3I030310 (U)

March 9, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

Full validation was performed on the data for the analyses of six aqueous samples and two field blanks for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on September 2, 2003 at the City of St. Louis Park Reilly Tar site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL-Denver) in Arvada, CO for analysis. STL processed and reported the results under lot number D3I030310.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar and Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

Sample IDs	Sample IDs
W33-090203	W33FB-090203 (field blank)
W33FBD-090203 (field blank duplicate)	W24-090203
W410-090203	W410D-090203 (field duplicate of W410-090203)
W23-090203	SLP10-090203

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/field blanks
- Surrogate spike recoveries
- Internal standard performance
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results

- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were noted.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory met the acceptance criteria of 4°C ± 2°C.

Initial and Continuing Calibrations

The percent relative standard deviations (%RSDs) and the response factors (RFs) of all target analytes were within the QC acceptance criteria in the initial calibration associated with all sample analyses.

The percent differences (%Ds) were within the QC acceptance criteria in the continuing calibration associated with all sample analyses.

It should be noted that one sample (SLP10-090203 – 10x dilution) was analyzed nine minutes after the 12 hour continuing calibration clock. No action was taken on the basis of this minor nonconformance.

Method Blanks/Field Blanks

Target analytes were not detected in the laboratory method blank. Target analytes were detected in both the field blank (W33FB-090203) and the field blank duplicate (W33FBD-090203). Detected concentrations are summarized in the table below. Per Region 5 guidance, no action was taken on this basis.

Blank ID	Analyte	Concentration (ng/L)
W33FB-090203	Anthracene	1.2
W33FB-090203	Indene	1.3
W33FB-090203	2-Methylnaphthalene	1.3
W33FB-090203	Naphthalene	3.1
W33FBD-090203	Indene	1.2
W33FBD-090203	2-Methylnaphthalene	1.4
W33FBD-090203	Naphthalene	3.3
W33FBD-090203	Phenanthrene	1.1

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses with the exception of those tabulated below.

Sample ID	Surrogate	%R	QC Limits (%R)
W33-090203	Chrysene-d_{12}	12	30 – 118
W24-090203	Chrysene-d_{12}	16	30 – 118
W24-090203	Fluorene-d_{10}	35	41 - 162
W24-090203 (2x dil)	Chrysene-d_{12}	17	30 – 118
W24-090203 (2x dil)	Fluorene-d_{10}	36	41 - 162
W410-090203	Chrysene-d_{12}	19	30 – 118
W410D-090203	Chrysene-d_{12}	25	30 – 118
W23-090203	Chrysene-d_{12}	24	30 – 118
SLP10-090203	Chrysene-d_{12}	26	30 – 118

Detected and non-detected results in sample W24-090203 were qualified as estimated (J/UJ). No action was taken on the results from the other samples since only one of three surrogates was outside of the acceptance limits. It should also be noted that surrogates were diluted out of the 10x dilutions of samples W410-090203, W410D-0902030, and SLP10-090203, and the 25x dilution of W23-090203. No action was required on this basis.

Internal Standard Performance

The internal standard performance was within the QC acceptance criteria of 50 – 200% in all sample analyses with the exception of perylene-d_{12} (220%) in sample W33-090203. Detected results reported for analytes quantitated with this internal standard were qualified as estimated (J). Non-detected results were accepted unqualified since the nonconformance suggests a positive bias.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses.

MS/MSD Results

MS/MSD analyses were performed on sample W410-090203. All relative percent differences (RPDs) met the acceptance criteria. The following table summarizes the percent recoveries of the spiked target analytes which fell outside the QC acceptance limits. The non-detected results for benzo(e)pyrene in the native sample W410-090203 and its duplicate W410D-090203 were rejected (R) since the compound did not recover in the MS/MSD analyses. The detected and non-detected results for chrysene and quinoline were qualified as estimated (J/UJ) in these samples.

Compound	%R MS/MSD	QC Limits
Chrysene	21/18	30 - 132
Benzo(e)pyrene	0/0	30 - 150
Quinoline	33/24	30 - 150

Field Duplicate Results

Samples W410-090203 and W410D-090203 were submitted as the field duplicate samples with this data set. Detected analytes and associated RPDs are tabulated below. All RPDS met the acceptance criteria or were not calculable (NC) due to a non-detect result in either the sample or the duplicate. Precision was deemed acceptable.

Analyte	Original (ng/L)	Duplicate (ng/L)	RPD
1-Methylnaphthalene	490	570	15.1
2,3-Benzofuran	4.8 J	5.4 U	NC
2,3-Dihydroindene	910	1100	18.9
Acenaphthene	310	350	12.1
Acenaphthylene	94	100	6.2
Anthracene	15	17	12.5
Benzo(b)thiophene	360	420	15.4
Biphenyl	96	110	13.6
Carbazole	150	150	0
Dibenzofuran	140	150	6.9
Dibenzothiophene	10	12	18.2
Fluoranthene	10	11	9.5
Fluorene	150	160	6.5
Indene	810	940	14.9
Indole	4.5 J	5.9	26.9
Naphthalene	41	52	23.7
Phenanthrene	150	170	12.5
Pyrene	5.4	5.6	3.6
Quinoline	7.5 J	10	28.6

Compound Quantitation

Sample results were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

All samples were initially analyzed undiluted, and all non-detects are reported from the undiluted run. Sample quantitation limits (SQLs) were therefore not affected. Several samples required an additional diluted analysis as tabulated below due to target compound concentrations that exceeded the calibration range in the undiluted analysis.

Sample ID	Dilution
W24-090203	2x
W410-090203	10x
W410D-090203	10x
W23-090203	25x
SLP10-090203	10x

Sample quantitation limits were adjusted accordingly. The laboratory reported results from the most appropriate run.

The laboratory's reporting limits were compared with those specified in the QAPP. All laboratory limits were met the required reporting limits with the following exceptions:

Analyte	Laboratory Reporting Limit (ng/L)	QAPP Reporting Limit (ng/L)
Phenanthrene	6.3	4.7
Anthracene	4.2	3.4
Benzo(k)fluoranthene	4.1	3.9

No action was taken other than this notation.

SEVERN TRENT STL

STL Denver
4955 Yarrow Street
Arvada, CO 80002

Tel: 303 736 0100 Fax: 303 431 7171
www.stl-inc.com

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3J220273

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

December 10, 2003

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section,).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3J220273

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Four samples were received under chain of custody on October 22, 2003. The samples were received in good condition at temperatures of 3.1, 2.0, and 2.6°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The analytes Naphthalene and Phenanthrene were detected in the Method Blank below the reporting limit. No corrective action is taken for values detected in the method blanks below the reporting limits.

The LCS demonstrated recovery below the control limits for Quinoline. Quinoline has historically shown very poor and erratic recoveries. The holding time had expired and insufficient sample volume remains for re-extraction of samples. Quinoline results should be considered biased low.

The MS/MSD performed on sample D3J220273-002 demonstrated recoveries that were below the control limits for Benzo(e)pyrene and Quinoline. Additionally, the relative percent difference for Benzo(a)pyrene was outside control limits. These anomalies may be due to matrix interference.

Samples D3J220273-002 and 002MS failed the internal standard recovery criteria for Perylene-d12. Matrix effects are suspected.

Detections in the Field Blank are less than the reporting limit.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3J220273	
ANALYSIS:	SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	29
MB Surrogates	3	3
LCS	7	6
LCS Surrogates	3	3
FB/FBD	31	31
MS	7	5
MS Surrogates	3	3
MSD	7	5
MSD Surrogates	3	3
MS/MSD RPD	7	6
Sample/Dup. RPD	31	31
Sample Surrogates	12	12
Samples and QC Internal Standard Area	24	22
TOTAL	169	159

*A MS/MSD was performed on sample W119-102103.

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3J220273					
Sample: W119-102103		DUP: W119D-102103			
Compound	*Result*	*Compound*	*Result*	*RPD*	*RPD>50%*
Acenaphthene	64	Acenaphthene	69	7.5	
Acenaphthylene	4.7	Acenaphthylene	4.6	2.2	
Acridine	31	Acridine	36	14.9	
Anthracene	6.8	Anthracene	6.7	1.5	
Benzo(a)anthracene	0.99	Benzo(a)anthracene	ND	NC	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	7.3	Benzo(b)thiophene	7.6	4.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	3.9	Carbazole	3.9	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	1.1	Dibenzofuran	ND	NC	
Dibenzothiophene	ND	Dibenzothiophene	5.3	NC	
2,3-Dihydroindene	15	2,3-Dihydroindene	16	6.5	
Fluoranthene	9.7	Fluoranthene	9.9	2.0	
Fluorene	1.3	Fluorene	ND	NC	
Indene	11	Indene	12	8.7	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	1.9	Indole	1.7	11.1	
2-Methylnaphthalene	1.5	2-Methylnaphthalene	1.7	12.5	
1-Methylnaphthalene	1.5	1-Methylnaphthalene	1.6	6.5	
Naphthalene	2.2	Naphthalene	2.6	16.7	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	2.3	Phenanthrene	2.5	8.3	
Pyrene	14	Pyrene	14	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3J220273

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W48-102103 10/21/03 10:45 001				
Acenaphthene	63	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	2.8 J	4.8	ng/L	SW846 8270C SIM
Acridine	35	6.2	ng/L	SW846 8270C SIM
Anthracene	7.6	4.2	ng/L	SW846 8270C SIM
2,3-Benzofuran	1.4 J	5.4	ng/L	SW846 8270C SIM
Benzo(b)thiophene	7.3	5.2	ng/L	SW846 8270C SIM
Carbazole	3.5 J	3.8	ng/L	SW846 8270C SIM
Dibenzothiophene	4.7	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	11	5.0	ng/L	SW846 8270C SIM
Fluoranthene	3.0 J	4.6	ng/L	SW846 8270C SIM
Indene	19	4.7	ng/L	SW846 8270C SIM
Indole	2.3 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.5 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	1.9 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	2.5 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.5 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	6.0	4.2	ng/L	SW846 8270C SIM
W119-102103 10/21/03 15:00 002				
Acenaphthene	64	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	4.7 J	4.8	ng/L	SW846 8270C SIM
Acridine	31	6.2	ng/L	SW846 8270C SIM
Anthracene	6.8	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	0.99 J	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	7.3	5.2	ng/L	SW846 8270C SIM
Carbazole	3.9	3.8	ng/L	SW846 8270C SIM
Dibenzofuran	1.1 J	5.7	ng/L	SW846 8270C SIM
2,3-Dihydroindene	15	5.0	ng/L	SW846 8270C SIM
Fluoranthene	9.7	4.6	ng/L	SW846 8270C SIM
Fluorene	1.3 J	4.1	ng/L	SW846 8270C SIM
Indene	11	4.7	ng/L	SW846 8270C SIM
Indole	1.9 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.5 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	1.5 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	2.2 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.3 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	14	4.2	ng/L	SW846 8270C SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3J220273

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W119D-102103 10/21/03 15:05 003				
Acenaphthene	69	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	4.6 J	4.8	ng/L	SW846 8270C SIM
Acridine	36	6.2	ng/L	SW846 8270C SIM
Anthracene	6.7	4.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	7.6	5.2	ng/L	SW846 8270C SIM
Carbazole	3.9	3.8	ng/L	SW846 8270C SIM
Dibenzothiophene	5.3	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	16	5.0	ng/L	SW846 8270C SIM
Fluoranthene	9.9	4.6	ng/L	SW846 8270C SIM
Indene	12	4.7	ng/L	SW846 8270C SIM
Indole	1.7 J	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.7 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	1.6 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	2.6 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.5 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	14	4.2	ng/L	SW846 8270C SIM
W119FB-102103 10/21/03 15:30 004				
Fluoranthene	1.1 J	4.6	ng/L	SW846 8270C SIM
Indole	1.3 J	4.7	ng/L	SW846 8270C SIM
Naphthalene	1.4 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.2 J,B	6.3	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3J220273

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3J220273

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3J220273

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F26HC	001	W48-102103	10/21/03	10:45
F26HK	002	W119-102103	10/21/03	15:00
F26HL	003	W119D-102103	10/21/03	15:05
F26HP	004	W119FB-102103	10/21/03	15:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W48-102103

GC/MS Semivolatiles

Lot-Sample #...: D3J220273-001 Work Order #...: F26HC1AA Matrix.....: WG
Date Sampled...: 10/21/03 Date Received..: 10/22/03
Prep Date.....: 10/27/03 Analysis Date..: 12/04/03
Prep Batch #...: 3300447 Analysis Time..: 19:19
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	63	5.7	ng/L
Acenaphthylene	2.8 J	4.8	ng/L
Acridine	35	6.2	ng/L
Anthracene	7.6	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	1.4 J	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	7.3	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	3.5 J	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	4.7	4.1	ng/L
2,3-Dihydroindene	11	5.0	ng/L
Fluoranthene	3.0 J	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	19	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	2.3 J	4.7	ng/L
2-Methylnaphthalene	1.5 J	5.9	ng/L
1-Methylnaphthalene	1.9 J	5.6	ng/L
Naphthalene	2.5 J,B	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	2.5 J,B	6.3	ng/L
Pyrene	6.0	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(30 - 118)
Fluorene d-10	100	(41 - 162)
Naphthalene-d8	60	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: W119-102103

GC/MS Semivolatiles

Lot-Sample #...: D3J220273-002 Work Order #...: F26HK1AA Matrix.....: WG
Date Sampled...: 10/21/03 Date Received..: 10/22/03
Prep Date.....: 10/27/03 Analysis Date..: 12/04/03
Prep Batch #...: 3300447 Analysis Time..: 19:56
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	64	5.7	ng/L
Acenaphthylene	4.7 J	4.8	ng/L
Acridine	31	6.2	ng/L
Anthracene	6.8	4.2	ng/L
Benzo(a)anthracene	0.99 J	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	7.3	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	3.9	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	1.1 J	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	15	5.0	ng/L
Fluoranthene	9.7	4.6	ng/L
Fluorene	1.3 J	4.1	ng/L
Indene	11	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	1.9 J	4.7	ng/L
2-Methylnaphthalene	1.5 J	5.9	ng/L
1-Methylnaphthalene	1.5 J	5.6	ng/L
Naphthalene	2.2 J,B	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	2.3 J,B	6.3	ng/L
Pyrene	14	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	47	(30 - 118)
Fluorene d-10	67	(41 - 162)
Naphthalene-d8	54	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: W119D-102103

GC/MS Semivolatiles

Lot-Sample #...: D3J220273-003 Work Order #...: F26HL1AA Matrix.....: WG
Date Sampled...: 10/21/03 Date Received..: 10/22/03
Prep Date.....: 10/27/03 Analysis Date..: 12/04/03
Prep Batch #...: 3300447 Analysis Time..: 21:48
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	69	5.7	ng/L
Acenaphthylene	4.6 J	4.8	ng/L
Acridine	36	6.2	ng/L
Anthracene	6.7	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	7.6	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	3.9	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	5.3	4.1	ng/L
2,3-Dihydroindene	16	5.0	ng/L
Fluoranthene	9.9	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	12	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	1.7 J	4.7	ng/L
2-Methylnaphthalene	1.7 J	5.9	ng/L
1-Methylnaphthalene	1.6 J	5.6	ng/L
Naphthalene	2.6 J,B	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	2.5 J,B	6.3	ng/L
Pyrene	14	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	44	(30 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	53	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: W119FB-102103

GC/MS Semivolatiles

Lot-Sample #...: D3J220273-004 Work Order #...: F26HP1AA Matrix.....: WG
Date Sampled...: 10/21/03 Date Received..: 10/22/03
Prep Date.....: 10/27/03 Analysis Date..: 12/04/03
Prep Batch #...: 3300447 Analysis Time..: 22:25
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.1 J**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**1.3 J**	**4.7**	**ng/L**
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.4 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.2 J,B**	**6.3**	**ng/L**
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(30 - 118)
Fluorene d-10	48	(41 - 162)
Naphthalene-d8	58	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

QC DATA ASSOCIATION SUMMARY

D3J220273

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3300447	3300236
002	WG	SW846 8270C SIM		3300447	3300236
003	WG	SW846 8270C SIM		3300447	3300236
004	WG	SW846 8270C SIM		3300447	3300236

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3J220273 Work Order #...: F3HCT1AA Matrix.....: WATER
MB Lot-Sample #: D3J270000-447

Prep Date.....: 10/27/03 Analysis Time..: 16:50
Analysis Date..: 12/04/03 Prep Batch #...: 3300447
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	**1.1 J**	**8.6**	**ng/L**	**SW846 8270C SIM**
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	**1.5 J**	**6.3**	**ng/L**	**SW846 8270C SIM**
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	94	(30 - 118)
Fluorene d-10	66	(41 - 162)
Naphthalene-d8	80	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3J220273 Work Order #...: F3HCT1AC Matrix.....: WATER
LCS Lot-Sample#: D3J270000-447
Prep Date.....: 10/27/03 Analysis Date..: 12/04/03
Prep Batch #...: 3300447 Analysis Time..: 17:27
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**84**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**78**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**69**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**54**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**63**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**78**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**0.0 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 118)
Fluorene d-10	61	(41 - 162)
Naphthalene-d8	65	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3J220273 Work Order #...: F3HCT1AC Matrix.....: WATER
LCS Lot-Sample#: D3J270000-447
Prep Date.....: 10/27/03 Analysis Date..: 12/04/03
Prep Batch #...: 3300447 Analysis Time..: 17:27
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**8.35**	**ng/L**	**84**	**SW846 8270C S**
Chrysene	**10.0**	**7.77**	**ng/L**	**78**	**SW846 8270C S**
Fluorene	**10.0**	**6.89**	**ng/L**	**69**	**SW846 8270C S**
Indene	**10.0**	**5.45**	**ng/L**	**54**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**6.34**	**ng/L**	**63**	**SW846 8270C S**
Naphthalene	**10.0**	**7.82**	**ng/L**	**78**	**SW846 8270C S**
Quinoline	**10.0**	**0.0 a**	**ng/L**	**0.0**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 118)
Fluorene d-10	61	(41 - 162)
Naphthalene-d8	65	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	D3J220273	**Work Order #...:**	F26HK1AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3J220273-002		F26HK1AD-MSD		
Date Sampled...:	10/21/03	**Date Received..:**	10/22/03		
Prep Date.....:	10/27/03	**Analysis Date..:**	12/04/03		
Prep Batch #...:	3300447	**Analysis Time..:**	20:34		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	11 a,p	**(30 - 150)**	**200**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**43**	**(30 - 132)**			**SW846 8270C SIM**
	49	**(30 - 132)**	**16**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**64**	**(30 - 132)**			**SW846 8270C SIM**
	65	**(30 - 132)**	**2.7**	**(0-50)**	**SW846 8270C SIM**
Indene	**34**	**(30 - 150)**			**SW846 8270C SIM**
	53	**(30 - 150)**	**12**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**45**	**(30 - 150)**			**SW846 8270C SIM**
	52	**(30 - 150)**	**12**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**53**	**(30 - 150)**			**SW846 8270C SIM**
	66	**(30 - 150)**	**17**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a	**(30 - 150)**	**0.0**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	46	(30 - 118)
	52	(30 - 118)
Fluorene d-10	101	(41 - 162)
	65	(41 - 162)
Naphthalene-d8	45	(30 - 108)
	51	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3J220273 Work Order #...: F26HK1AC-MS Matrix.....: WG
MS Lot-Sample #: D3J220273-002 F26HK1AD-MSD
Date Sampled...: 10/21/03 Date Received..: 10/22/03
Prep Date.....: 10/27/03 Analysis Date..: 12/04/03
Prep Batch #...: 3300447 Analysis Time..: 20:34
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	ND	9.63	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.78	1.03	ng/L	11 a,p	200	SW846 8270C SIM
Chrysene	ND	9.63	4.11	ng/L	43		SW846 8270C SIM
	ND	9.78	4.81	ng/L	49	16	SW846 8270C SIM
Fluorene	1.3	9.63	7.44	ng/L	64		SW846 8270C SIM
	1.3	9.78	7.65	ng/L	65	2.7	SW846 8270C SIM
Indene	11	9.63	14.5	ng/L	34		SW846 8270C SIM
	11	9.78	16.4	ng/L	53	12	SW846 8270C SIM
2-Methylnaphthalene	1.5	9.63	5.88	ng/L	45		SW846 8270C SIM
	1.5	9.78	6.62	ng/L	52	12	SW846 8270C SIM
Naphthalene	2.2	9.63	7.32	ng/L	53		SW846 8270C SIM
	2.2	9.78	8.65	ng/L	66	17	SW846 8270C SIM
Quinoline	ND	9.63	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.78	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	46	(30 - 118)
	52	(30 - 118)
Fluorene d-10	101	(41 - 162)
	65	(41 - 162)
Naphthalene-d8	45	(30 - 108)
	51	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

Chain of Custody Record

3.1° BP
2.0° 10-22
2.6°

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 10/21/03	Chain of Custody Number: 289206
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952 924 2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Same	Lab Contact: Gail DeFuzzo	Analysis (Attach list if more space is needed)
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PAH PPT 5	Special Instructions/ Conditions of Receipt
W48-E 102103	10/21/03	1045		X			6						X	PAH PPT 5
W119 - 102103		1500												
W119D - 102103		1505												
W119MS - 102103		1510												
W119MSD - 102103		1515												
W119FB - 102103		1530												

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/21/03	1700	1. Received By	10/22/03	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3J220273 (V)

March 9, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of four aqueous samples for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM. The samples were collected on October 21, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3J220273.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

W48-102103
W119-102103
W119D-102103
W119FB-102103

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperatures upon receipt at the laboratory were between 2.0°C and 3.1°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, prep batch 3241187. There were two target analytes detected in the laboratory method blank. They were naphthalene and phenanthrene. There were four compounds detected in the field blank submitted for this data package. They were fluoranthene, indole, naphthalene, and phenanthrene. Each of the compounds were detected below the action levels.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses except for quinoline. Quinoline was detected at 0% and fell outside the control limits of 30-150.

MS/MSD Results

MS/MSD analyses were performed on sample W119-102103. The following table summarizes the percent recoveries and/or the relative percent differences (RPDs) of the spiked target analytes that fell outside the QC acceptance limits. The percent recovery for benzo(e)pyrene was 0% for the MS and 11 % for the MSD. Quinoline was not detected in either the MS or MSD. All other recoveries and RPDs were within the acceptable range.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	0/11	200	30-150/0-50
Quinoline	0/0	ok	30-150/0-50

Field Duplicate Results

Sample W119-102103 was submitted as the field duplicate sample with this data set. The RPD calculations for these samples were within the acceptable range for the detected analytes. There were 19 out of 31 compounds detected with a RPD range of 0.0% to 16.7%.

Quantitation Limits and Sample Results

All samples were analyzed undiluted. Sample quantitation limits (SQLs) were therefore not affected.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.

W

SEVERN TRENT STL

STL Denver
4955 Yarrow Street
Arvada, CO 80002

Tel: 303 736 0100 Fax: 303 431 7171
www.stl-inc.com

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3K050301

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

December 22, 2003

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3K050301

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Three samples were received under chain of custody on November 5, 2003. The samples were received in good condition at a temperature of 3.7°C.

GC/MS Semivolatiles, Method SW846 8270C Full Scan

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Sample D3K050301-002 was analyzed at a 10-fold dilution to obtain 2,3-Dihydroindene within the calibration range and was analyzed at a 20-fold dilution to obtain Naphthalene within the calibration range. All other analytes for this sample are reported from the undiluted analysis with surrogates in control. As a result of the dilutions, the surrogate recoveries could not be calculated.

Sample D3K050301-003 was analyzed at a 10-fold dilution to obtain several analytes within the calibration range. All other analytes for this sample are reported from the undiluted analysis with surrogates in control. As a result of the dilution, the surrogate recoveries could not be calculated.

The analytes Benzo(k)fluoranthene and Benzo(a)pyrene were detected in the Method Blank below the reporting limits. No corrective action is taken for values detected in the method blanks below the reporting limits.

The method required MS/MSD could not be performed due to insufficient sample volume. The Laboratory Control Sample was in control.

No other anomalies were observed.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold.

The analytes Benzo(e)pyrene, Fluoranthene, Naphthalene, and Phenanthrene were detected in the Method Blank below the reporting limits. No corrective action is taken for values detected in the method blanks below the reporting limits.

The LCS demonstrated recovery below the control limits for Quinoline. Quinoline has historically shown very poor and erratic recoveries. The holding time had expired and insufficient sample volume remains for re-extraction of the associated sample. Quinoline results should be considered biased low.

The MS/MSD performed on a batch QC sample demonstrated recoveries that were below the control limits for Benzo(e)pyrene and Quinoline. These anomalies may be due to matrix interference.

No other anomalies were observed.

Data Completeness for Method 8270C Full Scan and SIM Combined

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3K050301	
ANALYSIS:	SW846-8270C	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	62	62
MB Surrogates	6	6
LCS	14	13
LCS Surrogates	6	6
FB/FBD	NA	NA
MS	7	5
MS Surrogates	3	3
MSD	7	5
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	NA	NA
Sample Surrogates	9	9
Samples and QC Internal Standard Area	45	45
TOTAL	**169**	**164**
% Completeness	**97.0%**	

*A MS/MSD was performed on sample GAC-SLP4T-110303 (from D3K040195).

EXECUTIVE SUMMARY - Detection Highlights

D3K050301

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SLP6-110403 11/04/03 13:00 001				
Acenaphthene	100	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	22	4.8	ng/L	SW846 8270C SIM
Anthracene	1.6 J	4.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	5.5	5.2	ng/L	SW846 8270C SIM
Carbazole	2.5 J	3.8	ng/L	SW846 8270C SIM
Dibenzothiophene	1.8 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	78	5.0	ng/L	SW846 8270C SIM
Fluoranthene	2.2 J,B	4.6	ng/L	SW846 8270C SIM
Fluorene	8.1	4.1	ng/L	SW846 8270C SIM
Indene	4.7	4.7	ng/L	SW846 8270C SIM
Indole	5.8	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.9 J	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	1.5 J	5.6	ng/L	SW846 8270C SIM
Naphthalene	4.4 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.3 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	1.4 J	4.2	ng/L	SW846 8270C SIM
W420-110403 11/04/03 002				
Acenaphthene	120	10	ug/L	SW846 8270C
Anthracene	2.0 J	10	ug/L	SW846 8270C
2,3-Benzofuran	31	10	ug/L	SW846 8270C
Benzo(b)thiophene	99	10	ug/L	SW846 8270C
Biphenyl	19	10	ug/L	SW846 8270C
Carbazole	69	10	ug/L	SW846 8270C
Dibenzofuran	43	10	ug/L	SW846 8270C
Dibenzothiophene	11	10	ug/L	SW846 8270C
2,3-Dihydroindene	230	100	ug/L	SW846 8270C
Fluorene	39	10	ug/L	SW846 8270C
Indene	24	10	ug/L	SW846 8270C
2-Methylnaphthalene	110	10	ug/L	SW846 8270C
1-Methylnaphthalene	110	10	ug/L	SW846 8270C
Naphthalene	1900	200	ug/L	SW846 8270C
Phenanthrene	28	10	ug/L	SW846 8270C
W421-110403 11/04/03 003				
Acenaphthene	340	100	ug/L	SW846 8270C
Acenaphthylene	3.5 J	10	ug/L	SW846 8270C
Acridine	13	10	ug/L	SW846 8270C
Anthracene	150	10	ug/L	SW846 8270C
Benzo(a)anthracene	160	100	ug/L	SW846 8270C
Benzo(b)fluoranthene	110	10	ug/L	SW846 8270C

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D3K050301

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
W421-110403 11/04/03 003				
Benzo(k)fluoranthene	88 B	10	ug/L	SW846 8270C
Benzo(ghi)perylene	45	10	ug/L	SW846 8270C
Benzo(a)pyrene	110 B	10	ug/L	SW846 8270C
Benzo(e)pyrene	69	10	ug/L	SW846 8270C
Benzo(b)thiophene	32	10	ug/L	SW846 8270C
Biphenyl	37	10	ug/L	SW846 8270C
Carbazole	42	10	ug/L	SW846 8270C
Chrysene	150	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	16	10	ug/L	SW846 8270C
Dibenzofuran	170	100	ug/L	SW846 8270C
Dibenzothiophene	72	10	ug/L	SW846 8270C
2,3-Dihydroindene	110	10	ug/L	SW846 8270C
Fluoranthene	850	100	ug/L	SW846 8270C
Fluorene	270	100	ug/L	SW846 8270C
Indene	34	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	36	10	ug/L	SW846 8270C
2-Methylnaphthalene	100	10	ug/L	SW846 8270C
1-Methylnaphthalene	130	10	ug/L	SW846 8270C
Naphthalene	220	100	ug/L	SW846 8270C
Perylene	23	10	ug/L	SW846 8270C
Phenanthrene	1100	100	ug/L	SW846 8270C
Pyrene	630	100	ug/L	SW846 8270C

METHODS SUMMARY

D3K050301

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3K050301

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	Tim O'Donnell	000443
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3K050301

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F37DM	001	SLP6-110403	11/04/03	13:00
F37DQ	002	W420-110403	11/04/03	
F37DT	003	W421-110403	11/04/03	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-110403

GC/MS Semivolatiles

Lot-Sample #...: D3K050301-002 Work Order #...: F37DQ1AA Matrix.....: WG
Date Sampled...: 11/04/03 Date Received..: 11/05/03
Prep Date.....: 11/11/03 Analysis Date..: 12/08/03
Prep Batch #...: 3315270 Analysis Time..: 20:35
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**120**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acridine	ND	10	ug/L
Anthracene	**2.0 J**	**10**	**ug/L**
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
2,3-Benzofuran	**31**	**10**	**ug/L**
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(b)thiophene	**99**	**10**	**ug/L**
Biphenyl	**19**	**10**	**ug/L**
Carbazole	**69**	**10**	**ug/L**
Chrysene	ND	10	ug/L
Dibenzo(a,h)anthracene	ND	10	ug/L
Dibenzofuran	**43**	**10**	**ug/L**
Dibenzothiophene	**11**	**10**	**ug/L**
Fluoranthene	ND	10	ug/L
Fluorene	**39**	**10**	**ug/L**
Indene	**24**	**10**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	**110**	**10**	**ug/L**
1-Methylnaphthalene	**110**	**10**	**ug/L**
Perylene	ND	10	ug/L
Phenanthrene	**28**	**10**	**ug/L**
Pyrene	ND	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	51	(30 - 160)
Fluorene d-10	53	(36 - 127)
Naphthalene-d8	53	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-110403

GC/MS Semivolatiles

Lot-Sample #...: D3K050301-002	Work Order #...: F37DQ2AA	Matrix.....: WG	
Date Sampled...: 11/04/03	Date Received..: 11/05/03		
Prep Date.....: 11/11/03	Analysis Date..: 12/09/03		
Prep Batch #...: 3315270	Analysis Time..: 11:47		
Dilution Factor: 10			
	Method.....: SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Dihydroindene	230	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W420-110403

GC/MS Semivolatiles

Lot-Sample #...: D3K050301-002	Work Order #...: F37DQ3AA	Matrix.....: WG
Date Sampled...: 11/04/03	Date Received..: 11/05/03	
Prep Date.....: 11/11/03	Analysis Date..: 12/09/03	
Prep Batch #...: 3315270	Analysis Time..: 13:10	
Dilution Factor: 20		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	1900	200	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: W421-110403

GC/MS Semivolatiles

Lot-Sample #...: D3K050301-003 Work Order #...: F37DT1AA Matrix.....: WG
Date Sampled...: 11/04/03 Date Received..: 11/05/03
Prep Date.....: 11/11/03 Analysis Date..: 12/08/03
Prep Batch #...: 3315270 Analysis Time..: 23:44
Dilution Factor: 1
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	3.5 J	10	ug/L
Acridine	13	10	ug/L
Anthracene	150	10	ug/L
Benzo(b)fluoranthene	110	10	ug/L
Benzo(k)fluoranthene	88 B	10	ug/L
2,3-Benzofuran	ND	10	ug/L
Benzo(ghi)perylene	45	10	ug/L
Benzo(a)pyrene	110 B	10	ug/L
Benzo(e)pyrene	69	10	ug/L
Benzo(b)thiophene	32	10	ug/L
Biphenyl	37	10	ug/L
Carbazole	42	10	ug/L
Chrysene	150	10	ug/L
Dibenzo(a,h)anthracene	16	10	ug/L
Dibenzothiophene	72	10	ug/L
2,3-Dihydroindene	110	10	ug/L
Indene	34	10	ug/L
Indeno(1,2,3-cd)pyrene	36	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	100	10	ug/L
1-Methylnaphthalene	130	10	ug/L
Perylene	23	10	ug/L
Quinoline	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(30 - 160)
Fluorene d-10	51	(36 - 127)
Naphthalene-d8	58	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: W421-110403

GC/MS Semivolatiles

Lot-Sample #...: D3K050301-003 Work Order #...: F37DT2AA Matrix.....: WG
Date Sampled...: 11/04/03 Date Received..: 11/05/03
Prep Date.....: 11/11/03 Analysis Date..: 12/08/03
Prep Batch #...: 3315270 Analysis Time..: 21:13
Dilution Factor: 10
Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	340	100	ug/L
Benzo(a)anthracene	160	100	ug/L
Dibenzofuran	170	100	ug/L
Fluoranthene	850	100	ug/L
Fluorene	270	100	ug/L
Naphthalene	220	100	ug/L
Phenanthrene	1100	100	ug/L
Pyrene	630	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 160)
Fluorene d-10	NC,DIL	(36 - 127)
Naphthalene-d8	NC,DIL	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP6-110403

GC/MS Semivolatiles

Lot-Sample #...: D3K050301-001 Work Order #...: F37DM1AA Matrix.....: WG
Date Sampled...: 11/04/03 Date Received..: 11/05/03
Prep Date.....: 11/07/03 Analysis Date..: 12/05/03
Prep Batch #...: 3312127 Analysis Time..: 13:45
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**100**	**5.7**	**ng/L**
Acenaphthylene	**22**	**4.8**	**ng/L**
Acridine	ND	6.2	ng/L
Anthracene	**1.6 J**	**4.2**	**ng/L**
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**5.5**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**2.5 J**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	**1.8 J**	**4.1**	**ng/L**
2,3-Dihydroindene	**78**	**5.0**	**ng/L**
Fluoranthene	**2.2 J,B**	**4.6**	**ng/L**
Fluorene	**8.1**	**4.1**	**ng/L**
Indene	**4.7**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	**5.8**	**4.7**	**ng/L**
2-Methylnaphthalene	**1.9 J**	**5.9**	**ng/L**
1-Methylnaphthalene	**1.5 J**	**5.6**	**ng/L**
Naphthalene	**4.4 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**2.3 J,B**	**6.3**	**ng/L**
Pyrene	**1.4 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	58	(30 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	71	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

QC DATA ASSOCIATION SUMMARY

D3K050301

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3312127	3312015
002	WG	SW846 8270C		3315270	
003	WG	SW846 8270C		3315270	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 Work Order #...: F4JVW1AA Matrix.....: WATER
MB Lot-Sample #: D3K110000-270

Prep Date.....: 11/11/03 Analysis Time..: 19:19
Analysis Date..: 12/08/03 Prep Batch #...: 3315270
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acridine	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	**1.2 J**	**10**	**ug/L**	**SW846 8270C**
2,3-Benzofuran	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	**1.1 J**	**10**	**ug/L**	**SW846 8270C**
Benzo(e)pyrene	ND	10	ug/L	SW846 8270C
Benzo(b)thiophene	ND	10	ug/L	SW846 8270C
Biphenyl	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Dibenzothiophene	ND	10	ug/L	SW846 8270C
2,3-Dihydroindene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Indene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Indole	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
1-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
Perylene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Quinoline	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 160)
Fluorene d-10	48	(36 - 127)
Naphthalene-d8	56	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 Work Order #...: F4JVW1AC Matrix.....: WATER
LCS Lot-Sample#: D3K110000-270
Prep Date.....: 11/11/03 Analysis Date..: 12/08/03
Prep Batch #...: 3315270 Analysis Time..: 19:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**66**	**(30 - 150)**	**SW846 8270C**
Chrysene	**63**	**(43 - 124)**	**SW846 8270C**
Fluorene	**72**	**(51 - 120)**	**SW846 8270C**
Indene	**63**	**(49 - 108)**	**SW846 8270C**
2-Methylnaphthalene	**65**	**(47 - 138)**	**SW846 8270C**
Naphthalene	**70**	**(43 - 128)**	**SW846 8270C**
Quinoline	**68**	**(40 - 126)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 160)
Fluorene d-10	55	(36 - 127)
Naphthalene-d8	66	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 Work Order #...: F4JVW1AC Matrix.....: WATER
LCS Lot-Sample#: D3K110000-270
Prep Date.....: 11/11/03 Analysis Date..: 12/08/03
Prep Batch #...: 3315270 Analysis Time..: 19:57
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**50.0**	**32.8**	**ug/L**	**66**	**SW846 8270C**
Chrysene	**50.0**	**31.6**	**ug/L**	**63**	**SW846 8270C**
Fluorene	**50.0**	**36.0**	**ug/L**	**72**	**SW846 8270C**
Indene	**50.0**	**31.4**	**ug/L**	**63**	**SW846 8270C**
2-Methylnaphthalene	**50.0**	**32.6**	**ug/L**	**65**	**SW846 8270C**
Naphthalene	**50.0**	**34.9**	**ug/L**	**70**	**SW846 8270C**
Quinoline	**50.0**	**33.8**	**ug/L**	**68**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 160)
Fluorene d-10	55	(36 - 127)
Naphthalene-d8	66	(37 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 Work Order #...: F4FHD1AA Matrix.....: WATER
MB Lot-Sample #: D3K080000-127

Prep Date.....: 11/07/03 Analysis Time..: 18:05
Analysis Date..: 12/04/03 Prep Batch #...: 3312127
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	**1.0 J**	**4.3**	**ng/L**	**SW846 8270C SIM**
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	**1.2 J**	**4.6**	**ng/L**	**SW846 8270C SIM**
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	**1.1 J**	**8.6**	**ng/L**	**SW846 8270C SIM**
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	**1.4 J**	**6.3**	**ng/L**	**SW846 8270C SIM**
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 118)
Fluorene d-10	58	(41 - 162)
Naphthalene-d8	75	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 **Work Order #...:** F4FHD1AC **Matrix.....:** WATER
LCS Lot-Sample#: D3K080000-127
Prep Date.....: 11/07/03 **Analysis Date..:** 12/04/03
Prep Batch #...: 3312127 **Analysis Time..:** 18:42
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**78**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**72**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**75**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**67**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**77**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**91**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**0.0 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 118)
Fluorene d-10	66	(41 - 162)
Naphthalene-d8	79	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 Work Order #...: F4FHD1AC Matrix.....: WATER
LCS Lot-Sample#: D3K080000-127
Prep Date.....: 11/07/03 Analysis Date..: 12/04/03
Prep Batch #...: 3312127 Analysis Time..: 18:42
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**7.82**	**ng/L**	**78**	**SW846 8270C S**
Chrysene	**10.0**	**7.25**	**ng/L**	**72**	**SW846 8270C S**
Fluorene	**10.0**	**7.52**	**ng/L**	**75**	**SW846 8270C S**
Indene	**10.0**	**6.74**	**ng/L**	**67**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**7.73**	**ng/L**	**77**	**SW846 8270C S**
Naphthalene	**10.0**	**9.10**	**ng/L**	**91**	**SW846 8270C S**
Quinoline	**10.0**	**0.0 a**	**ng/L**	**0.0**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 118)
Fluorene d-10	66	(41 - 162)
Naphthalene-d8	79	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 Work Order #...: F33971AC-MS Matrix.....: WATER
MS Lot-Sample #: D3K040195-005 F33971AD-MSD
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/04/03
Prep Batch #...: 3312127 Analysis Time..: 23:39
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a	**(30 - 150)**	**0.0**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**34**	**(30 - 132)**			**SW846 8270C SIM**
	34	**(30 - 132)**	**10**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**54**	**(30 - 132)**			**SW846 8270C SIM**
	57	**(30 - 132)**	**3.8**	**(0-50)**	**SW846 8270C SIM**
Indene	**56**	**(30 - 150)**			**SW846 8270C SIM**
	61	**(30 - 150)**	**0.25**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**63**	**(30 - 150)**			**SW846 8270C SIM**
	68	**(30 - 150)**	**0.50**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**62**	**(30 - 150)**			**SW846 8270C SIM**
	67	**(30 - 150)**	**0.20**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	0.0 a	**(30 - 150)**	**0.0**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(30 - 118)
	43	(30 - 118)
Fluorene d-10	48	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	60	(30 - 108)
	64	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K050301 Work Order #...: F33971AC-MS Matrix.....: WATER
MS Lot-Sample #: D3K040195-005 F33971AD-MSD
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/04/03
Prep Batch #...: 3312127 Analysis Time..: 23:39
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	ND	10.6	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.76	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM
Chrysene	ND	10.6	3.64	ng/L	34		SW846 8270C SIM
	ND	9.76	3.29	ng/L	34	10	SW846 8270C SIM
Fluorene	ND	10.6	5.74	ng/L	54		SW846 8270C SIM
	ND	9.76	5.52	ng/L	57	3.8	SW846 8270C SIM
Indene	ND	10.6	6.00	ng/L	56		SW846 8270C SIM
	ND	9.76	5.99	ng/L	61	0.25	SW846 8270C SIM
2-Methylnaphthalene	ND	10.6	6.71	ng/L	63		SW846 8270C SIM
	ND	9.76	6.68	ng/L	68	0.50	SW846 8270C SIM
Naphthalene	1.6	10.6	8.24	ng/L	62		SW846 8270C SIM
	1.6	9.76	8.22	ng/L	67	0.20	SW846 8270C SIM
Quinoline	ND	10.6	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.76	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(30 - 118)
	43	(30 - 118)
Fluorene d-10	48	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	60	(30 - 108)
	64	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

3.7° @ 11-5

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL-4124 (0901)

Client CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	**Project Manager** SCOTT ANDERSON	**Date** 11-4-03	**Chain of Custody Number** 289208
Address / **City**	**Telephone Number (Area Code)/Fax Number** 924-2557 (952) 924-2570	**Lab Number**	**Page** ____ of ____
	Site Contact SAME / **Lab Contact**		
Project Name and Location (State) SAME	**Carrier/Waybill Number** FED EX 806824145 84		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: PCB Pail	PCB TAL	Special Instructions/ Conditions of Receipt
SLP6-110403	11-4-03	1300		X			X					6	X		PCE 5
W420-110403	11-04-03			X			X					2			
W421-110403	11-4-03			X			X					2		X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By MAP	11-4-03	1500	1. Received By	11/5/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

ENSR

DATA QUALITY ASSESSMENT

STL Project # D3K050301 (W)

March 9, 2004

Site: Reilly Site, St. Louis Park, MN

ENSR Project # 01620-032-600

Client: City of St. Louis Park

SUMMARY

A data assessment was performed on the data for the analyses of one aqueous sample for part per trillion (ppt) polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C SIM and two samples for part per billion (ppb) for the same analysis. The samples were collected on November 4, 2003 at the Reilly Site in St. Louis Park, MN. The samples were submitted to Severn Trent Laboratories (STL) in Denver, CO for analysis. STL processed and reported the results under lot number D3K050301.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99), and "2003 Sampling Plan Reilly Tar & Chemical Corp. N.P.L Site, St. Louis Park, Minnesota", 10/2002. Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies.

SAMPLES

The samples included in this review are listed below:

SLP6-110403
W420-110403
W421-110403

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. There were no discrepancies to report.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The cooler temperature upon receipt at the laboratory was 3.7°C. All cooler temperatures were within the QC criteria of between 2-6°C.

Method Blanks

There was one method blank for this data package, prep batch 3312127. There were two target analytes detected in the laboratory method blank for the ppb analysis and four compounds detected in the method blank for the ppt analysis. Each of the compounds was detected below the action levels.

Surrogate Spike Recoveries

The percent recoveries of the surrogates were within the QC acceptance criteria in all sample analyses.

LCS Results

The percent recoveries of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses except for quinoline. Quinoline was detected at 0% and fell outside the control limits of 30-150.

MS/MSD Results

MS/MSD analyses were performed on a sample from a different data set (D3K040195). All percent recoveries and relative percent differences (RPDs) were within the acceptable range with the exception of benzo(e)pyrene and quinoline. The table below outlines the percent recoveries and RPDs that were outside the control limits.

Compound	%R MS/MSD	RPD (%)	MS-MSD/RPD QC Limits
Benzo(e)pyrene	0/0	ok	30-150/0-50
Quinoline	0/0	ok	30-150/0-50

Field Duplicate Results

No sample duplicates were submitted with this data package.

Quantitation Limits and Sample Results

There were two samples diluted due to elevated concentrations of target analytes. Sample quantitation limits (SQLs) were properly adjusted.

A total of three SQLs exceeded the required QAPP SQLs on Table A-1. They are anthracene at 4.2ng/l (3.4ng/l required), benzo(k)fluoranthene at 4.1ng/l (3.9ng/l required), and phenanthrene at 6.3ng/l (4.7ng/l required). All other laboratory reported quantitation limits were at or below the reporting limits required by the QAPP.